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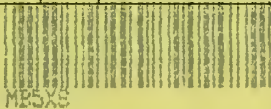
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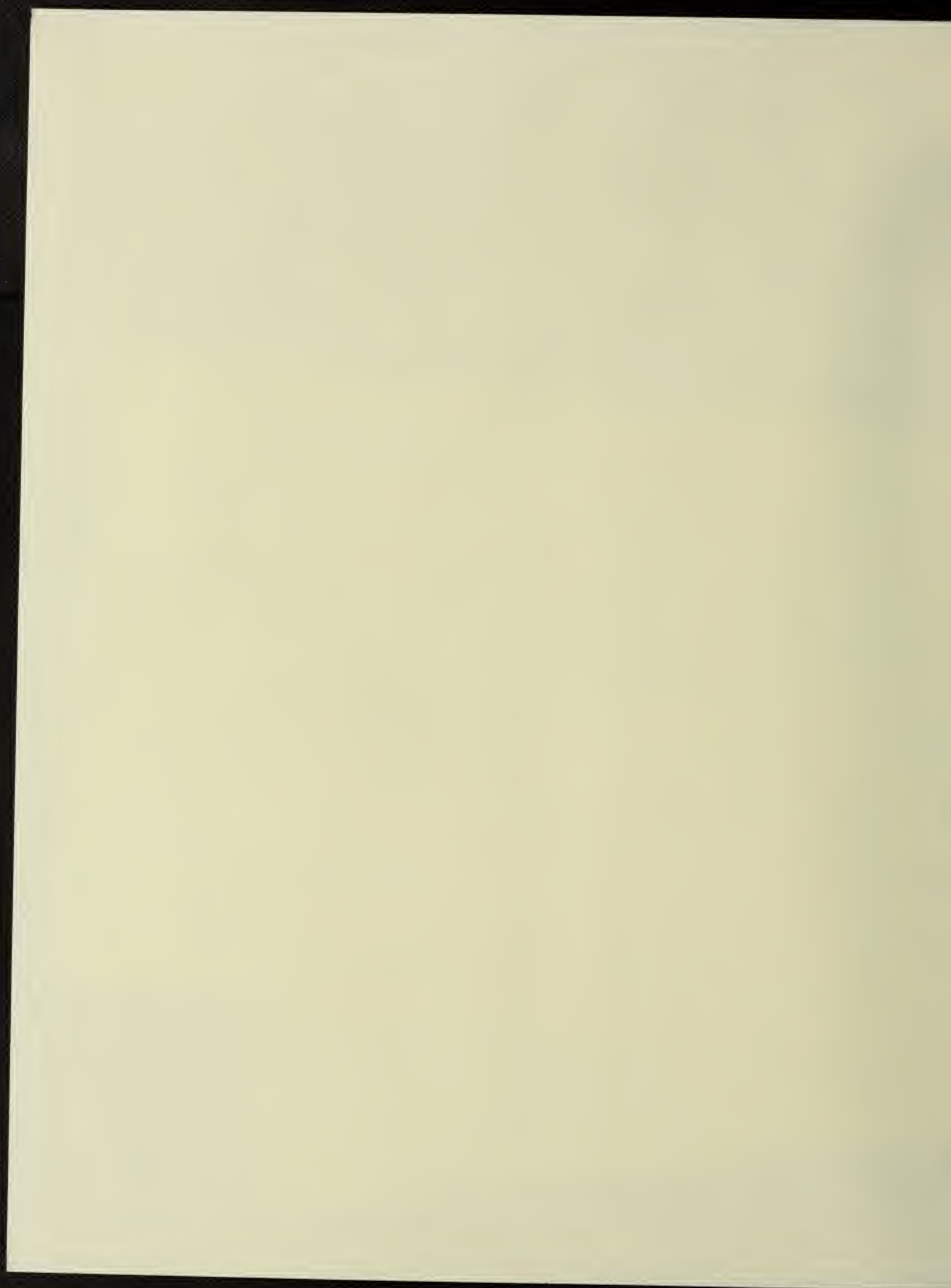
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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 20

NUMBER 1

JANUARY 1989

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Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

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The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280, a DEC VAX-11/750, a DEC VAX 8700, a DEC VAX 8250, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

REMOVAL OF INTERNAL COMPUTER BACK-UP SYSTEM

In the June 1985 *Newsletter*, the Computing and Telecommunications Division (CTD) announced that a VM/SP back-up capability was available for extended outages of the red IBM 3033 computer. Since then, CTD has extended the capability to provide nearly all functions of both the MVS and VM operating systems, if either IBM 3033 computer is unavailable. While CTD was able to provide nearly all functions in these situations, it "fell short" of providing complete performance. Furthermore, entering or exiting a back-up configuration was extremely disruptive. Because of its poor performance and infrequent use, CTD is no longer providing its internal IBM computer back-up system.

CTD undertook a review of IBM 3033 outages as part of its IBM 3033 Replacement Task Force efforts and again after the Task Force disbanded. These reviews focused on the frequency of outages, the duration of outages, and the number of times CTD initiated the back-up system. These studies show that failures requiring a back-up system are rare.

An examination of the frequency of outages shows that central computer reliability has improved considerably between 1982 and 1988. Figure 1 shows the increased mean time between failures (that is, longer periods of availability) on the yellow and red IBM 3033 computers.¹ During 1982, each IBM 3033 computer failed approximately every three days. By 1988, outages for the yellow IBM 3033 computer occurred approximately every ten days, and outages for the red IBM 3033 computer occurred approximately every six weeks.

A review of the duration of outages shows that situations warranting the initiation of a back-up configuration are also rare. Table 1 shows the outage duration for the two-year period ending September 1987.²

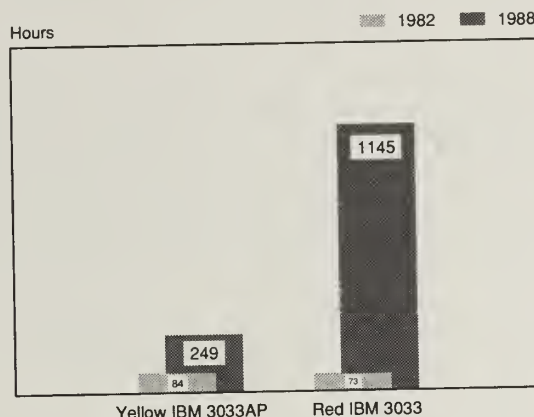


Figure 1: Increased Mean Time Between Failures on the Yellow and Red IBM 3033 Computers

Length of Outage (Hours)	Yellow IBM 3033AP	Red IBM 3033	Cumulative Percentage
0 to 2	12	9	60
2 to 8	3	4	80
8 to 18	6	1	100

These statistics show that CTD resolves 80 percent of all CPU failures within eight hours and 100 percent within one day. It is unlikely that a CPU failure will affect any user for more than 24 hours. During these 35 outages, CTD initiated a back-up system only ten times. Because of the infrequency of long outages, the IBM 3033 Replacement Task Force did not require that the replacement for the IBM 3033 computers consist of two computers. Also, CTD has established an offsite disaster back-up plan for critical administrative applications. Argonne can use the IBM-compatible computers at the University of Chicago for critical administrative applications if a disaster strikes the Laboratory's central computers. CTD regularly tests this back-up service (which is part of CTD's disaster recovery plan). Because extended outages resulting in the use of a back-up configuration are rare, CTD has decided a back-up system is not necessary.

¹ We derived the plot from *Newsletter* statistics for 1982 and the first ten months of 1988. The statistics do not indicate the cause of a failure; thus a disk drive failure may have caused a failure of the red IBM 3033.

² These statistics are for actual CPU failures.

COMPUTING CLASSES SCHEDULED FOR JANUARY AND FEBRUARY 1989

During January and February 1989, CTD will offer one demonstration and six classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, Cray UNICOS, and computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to Wylbur for Text Editing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit MVS and UNICOS batch jobs; and to review MVS and UNICOS batch output.

Introduction to UNICOS and Shell Programming (two 3-hour sessions) is for new users who want basic information on UNICOS and shell programming on the Cray X-MP/14 high performance computer. The class covers introductory material on the Unix file system, space management, and shell programming.

Using the Cray X-MP from the MVS Station (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS and Shell Programming" by providing examples of how to submit various Cray

batch jobs from other ANL computing systems (including CMS, MVS, and VAX/VMS).

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Using VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

HIGH PERFORMANCE COMPUTING SEMINARS

The series of seminars is continuing. An upcoming talk for the month of January is:

Robert Schreiber, NASA Ames Research Center
Compiling for a Memory Hierarchy
Monday, January 23, 1989

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415. The seminar chairman is Jack Dongarra.

CMS NEWS

NEW JCL, IBM UTILITIES, CLIST, AND REXX COMPUTER-BASED COURSES AVAILABLE IN CMS

CTD has installed four new and three updated computer-based training (CBT) courses from CRWTH Computer Coursewares (see Table 2). With the addition of these four courses, there are a

total of 49 CRWTH CBT courses available in CMS. People who do not wish to take the CBT course (but would like to review the material) can obtain a copy of any of the course workbooks at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). The latest workbooks are indexed and make excellent reference documents. The workbooks are available at a nominal cost.

Table 2: New and Updated CRWTH CBT Courses Available

New Courses

JCL for Programmers
Using IBM Utilities in Application Programming
CLIST Programming
REXX Application Programming

Updated Courses

Managing Projects with AS
Developing Data Processing Skills for the End User
Using DisplayWrite/370

"JCL For Programmers" (PGMJCL) is for programmers who use the MVS operating system. On completion of the course, you should be able to create jobs and job steps; to store datasets on disk or tape; to write appropriate DD statements; to use, write, and override cataloged procedures; to create and use partitioned datasets; to create program libraries; and to work with generation data groups. The course is detailed and covers various topics (such as common abends, disk space estimation, blocksize effects on performance and cost, common JCL errors, and VSAM datasets). CTD recommends the workbook for this course as a JCL reference document, even if you decide not to take the complete course.

"Using IBM Utilities in Application Programming" (MVSUTL) is for programmers who need to use IBM utilities to manipulate files. MVS users who need more of an in-depth knowledge of IBM utilities should take this course or get a copy of the course workbook. The course covers the utilities for copying datasets (IEBGENER, IEBCOPY, and

IEHMOVE), for using IEHPROGM to rename and catalog datasets, for using IEBCOMPR to compare files, for using IEBPTPCH to print files, for updating files with IEBUPDTE, for using IEHLIST to list library directories, and for using IEBDG to generate test data of all data types except floating point. Most Wylbur and MVS batch users will not need the information in this course. Such users can rely on various Wylbur execs and cataloged procedures implemented by CTD for data management.

"CLIST Programming" (CLSTPG) covers how to write and use CLIST programs in TSO. TSO users who wish to take this course should also be familiar with TSO commands, ISPF/PDF, JCL, and a programming language. This course covers CLIST components and syntax, variables and built-in functions, logical structures, input/output operations, error handling, and productivity tips.

"REXX Application Programming" (REXXAP) is for application programmers who want to learn the REXX language for VM/SP mainframe REXX or Personal REXX for personal computers. REXX (also called the System Product Interpreter) evolved from EXEC and EXEC2. Some knowledge of CMS and XEDIT is necessary. This course covers many functions in REXX programming (including using variables, performing arithmetic, manipulating strings, using the program stack, controlling program flow, using subroutines and functions, using CP and CMS commands, and debugging a REXX program).

CRWTH updated "Managing Projects with AS," "Developing Data Processing Skills for the End User," and "Using DisplayWrite/370" to remain technically current.

To use any of these courses, you must use either an IBM 3270-compatible display terminal or a terminal capable of using an IBM full screen emulator (such as the Hydra Protocol Converter).

To begin a CRWTH CBT course, enter:

CBT course

where "course" refers to the CBT course you wish to take. (See the CBT courseware list appended to this *Newsletter*.)

NAG MARK 12 AVAILABLE FOR TESTING IN CMS

The Mark 12 version of the Numerical Algorithms Group (NAG) mathematical library is now available in CMS for user testing. NAG Mark 12 includes new routines primarily in the areas of summation of series, ordinary differential equations, minimizing or maximizing functions, and sorting. As installed at Argonne, NAG library routines use double-precision real number arguments. Enter (in CMS)

HELP NAG12

for more information on new and deleted subroutines.

CMS users may access NAG Mark 12 by adding NAG and NAG2 to the GLOBAL TXLIB statement and entering:

```
CP LINK NAG 2 vaddr
ACCESS vaddr filemode
```

where "vaddr" is an unassigned virtual address and "filemode" is an unassigned filemode letter in your virtual machine.

CTD plans to make NAG Mark 12 production on March 6, 1989. Users may obtain the *NAG Fortran Library Mini Manual Mark 12* at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). We will order the complete set of the *NAG Fortran Library* manuals only on request.

CRAY NEWS

COMBINING NQS BATCH JOB OUTPUT FOR PRINTING VIA THE MVS STATION

Previously, in NQS batch jobs, it was difficult to combine UNICOS output files written without printer carriage control (for example, **stdout**) and UNICOS output files written with Fortran carriage control into a single print output file that preserved the carriage-control formatting. Most users resorted to printing UNICOS standard output files and UNICOS carriage-control formatted output files separately, resulting in at least two output files (and two printouts) for each NQS batch job. Now, for NQS batch jobs that return their output through

the MVS Station, the locally provided public **prcc** script offers a simple way to combine all output files, both with and without Fortran carriage control, into a single print file that preserves carriage control formatting.

To combine all NQS job output into a single print output file, copy all output to the UNICOS standard output file. Most UNICOS commands already write their output directly to standard output. Use the **cat** command to copy ASCII files that lack Fortran carriage control to the standard output:

```
cat file1 file2 ...
```

Use the public **prcc** script to copy ASCII files that contain Fortran carriage control to the standard output:

```
prcc ccfile1 ccfile2 ...
```

When UNICOS returns the resulting standard output file to the MVS Station for printing, the output that was written directly to standard output or copied to standard output with **cat** will print single spaced, but the files that were copied to standard output with **prcc** will print with the desired carriage control page formatting. The following considerations apply to the use of **prcc**:

- The MVS Station will correctly process these combined output files only if they are sent in UNICOS data format (**-fud**) with a print (**-dpr**) or MVS permanent disk file (**-dst**) disposition and an output record format of VBA (**-t "DCB=(RECFM=VBA, ...)"**). These characteristics are the MVS Station defaults for output files. If you provide your own **uscproute** command, you must observe these requirements.
- The **prcc** script inserts a page eject following the file(s) it copies to standard output. To insert page ejects at other points in standard output, use:


```
prcc /dev/null
```
- If a file you copy with **prcc** does not begin with a valid Fortran carriage control character, the MVS Station will revert to single spacing that file.
- If your combined UNICOS standard output exceeds 10,000 lines, your job must specify the correct line limit on a **uscproute** command:


```
uscproute -t"OUTLIM=nnnnn"
```

where "nnnnn" is the expected number of lines.

- You can redirect the output from **prcc** to a disk file to customize an output file containing both carriage control and non-carriage control components, which you can subsequently print with a **dispose** command (see the second example below).

The following example NQS batch job compiles a Fortran file **program.f** and produces a compiler listing **program.l**, which is formatted with carriage control. Next, the job loads and executes the object file, which produces the carriage control formatted output file **outdata**. This job combines all output files into standard output. If you submit this job through the MVS Station, UNICOS will return the standard output to the MVS Station, which will produce a single, properly formatted printout.

```
#user=b12345
#QSUB
set -xv
uscproute -t"OUTLIM=20000"
cft -eL program.f
segldr program.o
a.out > outdata
prcc program.l outdata
```

The example below differs from the previous example by combining the original Fortran source file, the compiler listing file, and the program's runtime output file into the disk file **output** that is printed explicitly with the **dispose** command. The MVS Station will print the job's standard output file separately from the **disposed** output file.

```
#user=b12345
#QSUB
set -xv
cft -eL program.f
segldr program.o
a.out > outdata
cat program.f > output
prcc program.l outdata >> output
dispose output -mOS -t"SYSOUT=A,OUTLIM=20000"
```

MVS CRAY STATION DEFAULTS NOW ACCOMMODATE ALL PRINT OUTPUT

Previously, the MVS Station distinguished print output files that lacked Fortran carriage control from print output files that included Fortran carriage controls. The previous MVS Station defaults assumed that print files contained Fortran carriage controls, and a CTD provided **uscproute** command in the UNICOS system logon profile specified no carriage control for the UNICOS standard output. Users who provided their own **uscproute** command or who **disposed** files lacking carriage control to the MVS Station for printing had to override the Station default in the respective command's text field, for example, **-t"DCB=(RECFM=VB, ...)"**.

Now CTD has modified the MVS Station software so that you can print nearly all UNICOS output files with the MVS Station's defaults. Generally, you will only need to specify the text field of a **uscproute** or **dispose** print output command to override the default MVS Station line limits, which are 10,000 lines and 5,000 lines, respectively.

The new MVS Station software works as follows:

1. The Station initially assumes that each print output file contains Fortran carriage controls.
2. The Station inspects the first character of the first record of the output file. If that character is not a valid Fortran carriage control character or if that character is a plus (+) sign, the Station cancels its default assumption and prints the output single spaced.
3. The Station continues to inspect the beginning characters of each output record. If the Station encounters the string **<<ASA>>** beginning in column 1 or column 2 of an output record, the Station will again assume that records have Fortran carriage control.
4. The Station will assume all subsequent records begin with valid carriage control characters, unless it encounters the string **<<END>>** beginning in column 2 of an output record. At this point, the Station will revert to single spacing the output.

CTD has created the public **prcc** script to automate the placement of the **<<ASA>>** and

<<END>> markers in output files that contain both carriage-control and non-carriage-control output. See "Combining NQS Batch Job Output for Printing Via the MVS Station" in this *Newsletter* for a discussion of **prcc** usage.

The MVS Station performs as described above only for output files that are sent in UNICOS data format (**-fUD**) with a print (**-dPR**) or MVS permanent disk file (**-dST**) disposition and an output record format of VBA. These characteristics are the MVS Station defaults for output files. Your own **uscproute** and print output **dispose** commands should not conflict with these requirements.

With the new MVS Station software, you can print most UNICOS files (whether they contain Fortran carriage control or not) with the following **dispose** command:

```
dispose file -t"OUTLIM=nnnnn"
```

where "nnnnn" is your estimate of the number of output lines (only needed if it exceeds the MVS Station default of 5,000 lines). If your NQS batch job did not originate through the MVS Station, you do not want your output to print at your NQS job's origin, or you are in an interactive UNICOS session established through the VAX/VMS Station or TCP/IP, change the print output **dispose** command to:

```
dispose file -mOS -t"SYSOUT=A,DEST=dest,OUTLIM=nnnnn"
```

where "dest" is a valid output destination in the MVS batch system, for example, **DEST=3800**, or in the Laboratory-wide NJE network or BITnet, for example, **DEST=(ANLVM, FICHE)**.

See "SSAF Facility Simplifies Front-End Station Access" in this *Newsletter* for a new UNICOS 4.0 feature that allows each user to specify the defaults that the MVS and VAX/VMS Station will use for **fetch**, **acquire**, and **dispose** commands from his NQS batch jobs and interactive UNICOS sessions that do not originate from the referenced station.

SSAF FACILITY SIMPLIFIES FRONT-END STATION ACCESS

The UNICOS Station Call Processor (USCP) Saved Slot Authorization File (SSAF) can simplify your use of the MVS and VAX/VMS Cray front-end stations when you:

1. submit Network Queuing System (NQS) batch jobs through one front-end station, but those jobs route their output and/or transfer some files through the other front-end station; or
2. submit NQS batch jobs interactively with the UNICOS **qsub** command, and those jobs route their output and/or transfer some files through either front-end station; or
3. transfer files between UNICOS and the MVS Station in an interactive UNICOS session that was initiated through the VAX/VMS Station; or
4. transfer files between UNICOS and either front-end station in an interactive UNICOS session that was initiated through the Transmission Control Protocol/Internet Protocol (TCP/IP).

If you use UNICOS in any of these ways, then the SSAF facility can benefit you.

UNICOS SSAF will probably not apply if you:

1. submit NQS batch jobs through a front-end station, and those jobs route their output and/or transfer files only through the same front-end station; or
2. submit NQS batch jobs interactively with the UNICOS **qsub** command, and those jobs leave their output in UNICOS and do not transfer any files through either front-end station; or
3. transfer files between UNICOS and other computing systems only with the TCP/IP **ftp** and/or **rcopy** commands.

If you only use UNICOS in these ways, you need not read further.

When you submit an NQS batch job through the MVS Station or through the VAX/VMS Station or when you logon to UNICOS interactively through the VAX/VMS Station, UNICOS saves routing and accounting information (in what is

called a slot record in Cray documentation) for your NQS job or UNICOS session that simplifies exchanging files with and returning job output to the front-end station of origin. This saved information is what permits UNICOS to automatically return an NQS job's output to the correct NJE network node or VMS directory when the job ends. However, when you exchange files with, or send output to, a front-end station from an NQS job or from an interactive UNICOS session that did not originate through that same station (for example, from a TCP/IP initiated session), the needed slot record for that station does not exist. In those circumstances, you previously had to supply that missing information to the front-end station in the text field of your UNICOS **acquire**, **fetch**, **dispose**, and **uscproute** commands. The resulting text fields are lengthy and difficult to code, and, for the VAX/VMS Station, require you to include your VMS userid and password, which is always undesirable.

Now, the new UNICOS 4.0 **uscpsaf** command permits you to save your own defaults for each front-end station you use. UNICOS will use these defaults only when you route output or transfer files through a front-end station from an NQS job or interactive session that did not originate through that same station. To save defaults for a particular station, submit from that station an NQS batch job that contains only the **uscpsaf** command. The **uscpsaf** command will save as your station defaults the accounting and routing defaults of the job in which it occurs. Subsequently, when you enter an **acquire**, **fetch**, **dispose**, or **uscproute** command for a particular station from an NQS job or interactive UNICOS session that did not originate through that station, UNICOS will use the defaults that you saved with the **uscpsaf** command. You can always override the station defaults in the text (-t) fields of your commands.

For the MVS Station, **uscpsaf** saves your job's origin network node and output destination, default job output class, output distribution code, RACF userid, RACF group, and MVS accounting. For example, the following job sets the saved MVS Station defaults to route UNICOS printed output to the IBM 3800 laser printer but to first hold that output for Wylbur **FETCH**. For MVS dataset access and creation, the saved RACF userid, RACF group, and MVS accounting are taken from the MVS JOB statement.

```
//MVSJOB JOB CLASS=C,USER=B12345,PASSWORD=pwd
//*MAIN  ORG=3800
//SUBMIT EXEC CRAY,FETCH=Y
//SYSUT1 DD *
#user=b12345a
set -xS
uscpsaf
/*
```

Omit the MVS JOB statement **USER** and **PASSWORD** parameters if you submit this job from MVS Wylbur, ANLVM CMS, or ANLCV1 VMS.

For the VAX/VMS Station, **uscpsaf** saves your job's origin node, VMS userid, VMS security group, default disk, default directory, default file protection mask, default VMS print queue, and default VMS batch queue. To save these defaults, use the **CRAY SUBMIT** command in VMS to submit the following NQS batch job

```
#user=b98765b
set -xS
uscpsaf
```

Before submitting this job, be sure your current VMS defaults are the ones you want saved in UNICOS. You can use the VMS **SET DEFAULT** command to change your default node, disk, and directory; the VMS **SET PROTECTION/DEFAULT** command to change your default file protection; and set the VMS **SYS\$PRINT** and **SYS\$BATCH** logical names to change your default VMS print and batch queues, respectively.

CFT77 RELEASE 3 FORTRAN COMPILER AVAILABLE FOR TESTING IN UNICOS

CTD has installed Version 3.0 of the Cray cft77 Fortran compiler in UNICOS in the /new directory for user testing. The current production version of cft77 is 2.0. Version 3.0 is Cray's newest version of cft77 and includes important improvements for optimizing and debugging Cray Fortran programs. New capabilities in cft77 Version 3.0 include:

- The cft77 command's new **-I** option will automatically insert the Fortran code for user subroutines and functions that you designate in place of the code that invoked those routines in a calling program. This option improves your program's

performance by eliminating costly subprogram linkage overhead and may permit formerly unvectorizable subprograms to vectorize.

- The `cft77` command's new `-ez` option offers improved debugging capability, even when the program has been compiled with full optimization.
- The Version 3.0 compiler permits you to EQUIVALENCE character variables to non-character variables and to mix character variables and non-character variables in the same COMMON block. These extensions violate the ANSI Fortran 77 standard; if you use these extensions, you will impair your program's portability. However, these extensions may be useful in converting old Fortran programs that store character (Hollerith) data in non-character variables.
- The Version 3.0 compiler's OPEN statement permits you to position an existing file for output at its beginning (as usual) or at its end (to append new data). This feature will not work at ANL until we install UNICOS 5.0. This feature is a Cray extension to Fortran and is not portable.
- The Version 3.0 compiler accepts Fortran source in uppercase or lowercase characters, Fortran variable names up to 31 characters long, the underscore character in Fortran variable names, and Fortran source lines that include tab characters (tabs are assumed at every eighth position of the source record). Version 3.0 recognizes the INCLUDE statement for copying source code from an external file into the program at compile time. These features are all Cray extensions to Fortran that are not portable to most other systems. However, these extensions may help users move VAX/VMS Fortran programs containing similar extensions to the UNICOS system.

During testing, you can invoke the `cft77` Version 3.0 compiler with the following UNICOS statement:

```
/new/cft77 -dp -esx prog.f
```

where:

-dp	treats double precision as single precision
-esx	provides a Fortran source and cross reference listing
prog.f	is your Fortran program

The `cft77` Version 3.0 compiler is documented in the *CFT77 Reference Manual* (SR-0018 C), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Users who experience difficulties while testing the new `cft77` compiler should contact the User Services consultant at extension 2-5405. If there are no difficulties, CTD will make `cft77` Version 3.0 the production version on Monday, February 6, 1989. After that date, you should no longer use the `/new/` prefix to access `cft77` version 3.0; instead, specify:

```
cft77 -dp -esx prog.f
```

CF77 FORTRAN COMPILING SYSTEM AVAILABLE IN UNICOS

The UNICOS `cf77` command implements an integrated compiling system consisting of Fortran preprocessors (see "FPP Preprocessor Enhances Fortran Program Performance in UNICOS" in this *Newsletter*), the `cft77` Version 3.0 compiler (see "CFT77 Release 3 Fortran Compiler Available for Testing in UNICOS" in this *Newsletter*), the assembler, and the segment loader. With the `cf77` command, you can produce an executable file, `a.out`, from Fortran source files and, optionally, assembly language source files. The `cf77` command automatically invokes the preprocessors, compiler, assembler, and loader phases and coordinates the files that pass from phase to phase.

The `cf77` command is unwieldy, because it specifies the separate options of all its components on a single command line! The primary advantage of the `cf77` compiling system is realized by multitasking programs designed for multiprocessor Cray systems. At ANL, where we have only a single processor Cray system, the `cf77` command presents little advantage over the separate commands that comprise the compiling system. However, because Cray documentation of the `cft77` compiler and Fortran optimization tools and techniques refers increasingly to the `cf77` command, it pays to be familiar with it.

The `cf77` compiling system is documented in the *Autotasking User's Guide* (SN-2088), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy) and in the

cf77 man page online in UNICOS. The *UNICOS User Commands Reference Manual* (SR-2011 4.0) will not contain documentation of the compiling system until the UNICOS 5.0 version of that manual. The updated reference entries are in an appendix to the *Autotasking User's Guide* (SN-2088).

To view online documentation of the cf77 compiling system, enter

```
man 1 cf77
```

in an interactive UNICOS session. Similarly, you can view the online documentation for the **fpp** preprocessor and the cft77 Version 3.0 compiler. Or, more conveniently, submit the following NQS batch job through the MVS or VAX/VMS station to list all three documents:

```
#user=bnnnnn
#QSUB-r CF77DOC
man -b1 1 cf77
man -b1 1 fpp
man -b1 1 cft77
```

FPP PREPROCESSOR ENHANCES FORTRAN PROGRAM PERFORMANCE IN UNICOS

The UNICOS **fpp** Fortran preprocessor can improve the performance of your Cray Fortran programs by identifying opportunities for *autotasking* and *vectorization* in your Fortran source code. Autotasking detects when portions of a Fortran program can be run in parallel on multiprocessor Cray computers. (Since our Cray X-MP computer has only a single processor, few ANL users will be interested in the autotasking enhancements). The preprocessor also improves vectorization of a Fortran program by inserting CDIR\$ compiler directives and restructuring the Fortran source program, so that the Cray Fortran compilers can recognize vectorization opportunities that they might otherwise overlook.

Cray distributes and documents **fpp** as a component of the cf77 compiling system (see "CF77 Fortran Compiling System Available in UNICOS" in this *Newsletter*). Although cf77 is based on the cft77 Version 3.0 compiler (see "CFT77 Release 3 Fortran Compiler Available for Testing in UNICOS" in this *Newsletter*), only the autotasking enhancements require that particular compiler. If you suppress the autotasking option, you can use **fpp** to preprocess Fortran statements for any version of the Cray cft and cft77 compilers.

Some of the more important vectorization enhancements provided by **fpp** are:

- The preprocessor vectorizes a wider class of loops than do the compilers alone. The preprocessor can vectorize certain IF/GO TO loops as well as DO loops; loops containing variables that appear in EQUIVALENCE statements; loops containing arithmetic, logical, and block IF statements; and loops that address arrays with nonlinear indices or along a diagonal.
- The preprocessor examines outer loops and inner loops for vectorization opportunities. The preprocessor will interchange the order of nested loops (a) if the restructured loop is vectorizable while the original inner loop is not or (b) if the restructured loop will yield a longer vector length or a smaller stride between vector elements than the original code.
- Where possible, the preprocessor reorders statements to remove data dependencies in loops and splits partially vectorizable loops into separate vectorizable and non-vectorizable loops.
- In deciding whether to vectorize a loop or to reorder nested loops to enhance vectorization, the preprocessor takes into account information from outside the loop (for example, DIMENSION statements) that is not presently used by any Cray compiler. If the preprocessor lacks enough information to determine whether a loop is vectorizable, it converts the original code into two loops (one vectorizable and one not) and adds an IF test to determine at runtime which loop to execute.
- The preprocessor can vectorize some loops that contain user subroutine calls by splitting the subroutine calls outside the loop. Alternatively, the preprocessor can expand selected user subprograms inline at the point where the subprograms are invoked by the calling program; the preprocessor then examines the inline code for additional optimizations.
- The preprocessor replaces some entire common loops (for example, matrix multiply and linear recursion) with calls to highly optimized library routines and replaces certain conditional expressions in loops with calls to conditional vector merge functions.

The input to **fpp** is a normal Cray Fortran program, optionally including CDIR\$ Cray compiler

directives and CFPP\$ **fpp** preprocessor directives. When the autotasking enhancements are disabled, the output from **fpp** is a restructured Fortran program with preprocessor added CDIR\$ compiler directives that is acceptable to all Cray Fortran compilers. It is wise to examine the restructured Fortran and iterate with the preprocessor, to add directives of your own to the original source code, and to vary the preprocessor options to obtain the best result. Take great care if you modify the restructured Fortran, because a modification could conflict with the analysis that led the preprocessor to insert a particular compiler directive.

The following illustrates the use of the preprocessor with the production version of the cft compiler:

```
fpp -dc -el -l pgm.l -o opt.f pgm.f
cft -dp -eLS opt.f
segldr opt.o
a.out
```

where:

-dc	disables autotasking enhancements
-el	enables a preprocessor listing
pgm.l	is the preprocessor listing file
pgm.f	is your original Fortran program
opt.f	optimized Fortran from fpp, input to cft
-dp	treats double precision as single precision
-eLS	enables a compiler listing and static storage
opt.o	compiled binary object code
a.out	executable binary module

Do not apply the preprocessor blindly to all your Fortran source code. Some of the preprocessor transformations may be undesirable and may lead to performance degradation rather than enhancement. Some potentially undesirable consequences of the preprocessor are:

- The ambitious analysis performed by the preprocessor may consume substantial amounts of Cray CPU time, especially when expanding subprograms inline.
- On already highly optimized programs, you may find little repayment for the additional analysis time taken by the preprocessor, since the preprocessor repeats much of the same analysis performed by the compilers themselves.
- Temporary work arrays introduced by the preprocessor could cause a significant increase in your program's memory needs.

- Preprocessor expansion of subprograms at the points at which they were invoked (inlining) can cause an explosive growth in your Fortran source, leading to longer compile times and larger runtime memory requirements.
- Preprocessor created temporary variables and arrays may compile to inefficient code (for example, unnecessary stores).
- Preprocessor transformations may prevent the compilers from performing certain optimizations on your code. For example, interchanging an inner loop that has a small iteration count with a longer outer loop may defeat the cft compiler's loop unrolling optimization.
- Restructured Fortran by the preprocessor may give slightly different numerical results from your original Fortran, owing to the preprocessor's reordering of expressions, renesting of loops, and substituting library routines for Fortran code.

The **fpp** preprocessor is documented in the *Autotasking User's Guide* (SN-2088), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). If you have questions or experience difficulties with the **fpp** preprocessor, contact the User Services consultant at extension 2-5405.

CRAY DCL PROCEDURE ON VAX 8700

With the **CRAY** VAX/VMS Station command, VMS users logged on to the ANLVG node (VAX Supercomputer Gateway) in the central VAX cluster can (1) submit NQS batch jobs to UNICOS, (2) inquire on and modify the UNICOS batch queues, and (3) inquire on and modify the VAX/VMS Station input and output queues. Now, the local **CRAY** DCL procedure extends most functions of the **CRAY** VAX/VMS Station command to users logged on to the central VAX 8700 computer (ANLCV1). The **CRAY** DCL procedure on ANLCV1 submits NQS batch jobs and VAX/VMS Station commands to ANLVG in VMS batch jobs. By default, the output from NQS batch jobs and the responses to VAX/VMS Station commands that you enter from ANLCV1 will return to the VMS directory that was your default (can be changed with the VMS **SET DEFAULT** command) at the time you invoked the **CRAY** DCL procedure.

To invoke the **CRAY** command, enter:

CRAY command options

where "command" is one of the available station commands and "options" is a parameter that complements the station command. Unlike the **CRAY** VMS command on the VAX Supercomputer Gateway, only a subset of the VAX/VMS Station commands are available from ANLCV1 with the **CRAY** DCL procedure.

For more information, enter:

HELP CRAY

while you are logged on to ANLCV1. Currently, we are working to extend the **CRAY** DCL procedure functionality now available on the VAX 8700 to the distributed VAX computers in the Laboratory-wide DECnet.

MANAGEMENT INFORMATION SYSTEMS

CICS SECURITY LOOPHOLE PLUGGED

CTD has fixed the security loophole that Hydra users have been experiencing with the Customer Information Control System (CICS). Previously, if a CICS user disconnected from the Hydra without properly logging off, the Hydra kept the CICS session active and the next person to dial in was connected to that CICS session. CTD isolated the cause of the difficulty and notified IBM. Later IBM provided a software fix.

Although IBM has fixed this particular bug, we encourage users to logoff properly. For Hydra users to logoff properly, they must include **control-@** to disconnect from the Hydra. If you believe that the security mechanism for CICS or any other system is not working properly, notify the User Services consultant at extension 2-5405 immediately.

INTEGRATED FINANCIAL SYSTEM EDUCATION SCHEDULE CHANGED

In December 1988, the Integrated Financial System (IFS) Project Team conducted the first class for Laboratory users on how to use the Information Expert (IE) reporting tool to produce financial reports from IFS. This initial class was for members of the Financial Reporting Working Group (FRWG). (See "Financial Reporting Working Group Formed" in the December 1988 *Newsletter*.)

Because of the feedback we obtained from the class participants, we will restructure the course content to concentrate on a smaller number of the IE functions. In addition, we have decided to conduct future classes closer to the IFS implementation date. This change will also enable financial users to have real financial data available for course exercises.

The CTD Management Information Systems will conduct future classes in February 1989 and March 1989. We will not hold any classes in January 1989, as previously announced. The exact dates and the location of the classes will be published in future issues of this *Newsletter*. FRWG members will contact users of financial reports in IFS for ways to improve the current financial reports available through the Financial Management System (FMS). Users with input should contact the representative for their Associate Laboratory Director (ALD) or administrative area.

FRWG members will report the progress on this phase of the project at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

PERSONAL COMPUTING

APPLE MACINTOSH LASERWRITER PREP FILE UPGRADE

On Monday, January 16, 1989, CTD will update the Apple Macintosh laser prep file used in the Apple LaserWriters that connect to RADS stations. The update will allow the use of Apple LaserWriter driver Version 5.0. Version 3.1 and prior versions will *not* work; other versions may or may

not work correctly. Users who still use the older Apple LaserWriter drivers should update to the most recent driver available; the new drivers generally provide improved capabilities.

This change will not affect users of Script, LaTeX, PC-based applications, or other non-Macintosh applications that generate PostScript. However, users who create PostScript files with Apple Macintosh applications like MacDraw must use the Apple LaserWriter Prep file Version 65 for files to print properly at RADS LaserWriters.

The Apple LaserWriter prep file is necessary for your application if the error message

```
error: undefined command
offending command:md
```

occurs at the Apple LaserWriter when your job prints. This message prints on the operator console attached to your RADS station. Also, the Apple LaserWriter will print the error message if the Adobe error handler has been loaded into your Apple LaserWriter. Otherwise, the print fails with partial output or no output. An indication of the wrong version of the prep file currently installed in your Apple LaserWriter is the message:

```
error: typecheck
offending command: mul
```

VAX/VMS NEWS

CENTRAL VAX CLUSTER DISK ACQUISITION PROGRESS

CTD is acquiring additional disk storage for the central VAX cluster disk storage system. We are seeking a minimum of four gigabytes that will approximately double our existing capacity. CTD expects this increase to alleviate the storage space limitation that many users have experienced over the past several months. We expect to designate about three gigabytes (or 75 percent of the new storage) for users' permanent and temporary file allocations.

The acquisition plan seeks equipment that will attach to the VAX cluster through the Hierarchical Storage Controller. This disk storage, like our current disk storage, will be accessible to all computers in the cluster (including the VAX 8700 general-purpose timesharing system, the VAX 8250

Supercomputer Gateway, and the VAX-11/750 Magnetic Fusion Energy network [MFEnet] gateway). The additional storage will mostly benefit the dynamic storage requirements of the VAX 8700 batch and interactive users and the users of the Cray X-MP/14 who fetch files from and dispose files to the VAX cluster and to VAX computers in the Laboratory-wide Digital Equipment Corporation network (DECnet) through the VAX 8250 front-end.

On December 1, 1988, the Purchasing Department issued a Request for Proposals (RFP); the vendors must submit their proposals by early January 1989. CTD hopes to have the new equipment installed by the middle of March 1989.

SAS GRAPHS MAY NOW BE SENT TO ARGONNE GRAPHICS DEVICES

VAX 8700 Statistical Analysis System (SAS) users may now create Computer Associates (CA) graphics metafiles for routing to both remote and central graphics output devices in the Network Job Entry (NJE) network. CTD has implemented an interface between SAS/Graph and the Argonne graphics system that permits the creation and routing of graphics metafiles to all graphics devices.

To run SAS/Graph, execute the SAS SETUP procedure:

```
$ SETUP SAS
```

To create a CA graphics picture (or POP) metafile from SAS, add the Digital Command Language (DCL) qualifier /DEVICE=POP to your SAS command line.

For example, if you wish to run your SAS program interactively from your terminal, enter:

```
$ SAS /DEVICE=POP
```

If your SAS input is in a file, enter:

```
$ SAS /DEVICE=POP mysasfile.sas
```

After the successful completion of the SAS procedure, you will find a new copy of the file POPFIL.DAT in your default directory. To send this file to a hardcopy graphics device, enter:

```
$ HARDCOPY POPFIL.DAT
```


Then answer the prompts to supply the requested information.

For more information about the **HARDCOPY** command and its batch and interactive options, enter:

HELP HARDCOPY

BITS & BYTES

WATFIV TO BE REMOVED IN CMS AND MVS

CTD does not plan to renew the license for the University of Waterloo Watfiv Fortran compiler. CTD is taking this action to reduce costs. A usage analysis has shown that three users have invoked the compiler in the last six months. CTD has contacted those users directly. Also, other available Fortran compilers have improved debugging capabilities that reduce the need for Watfiv.

ADDENDA AVAILABLE FOR PREVIOUSLY DISTRIBUTED DOCUMENTS

When CTD publishes addenda to manuals, we place the addenda inside the appropriate manuals stored at the Document Distribution Counter in Building 221, Room A-134. We will now place additional copies of these addenda in a carousel (near the Document Distribution Counter) for free distribution to users who received documents or locally prepared addenda before CTD revised the addenda. Computer users who already have a given document may now select a current addendum from this carousel. We will include descriptions of new addenda in "Recently Updated and Published Documents" in the *Newsletter*. Users can still call extension 2-5405 and request an addendum separately; however, users should make sure that they have the version of the vendor manual to which an addendum corresponds.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221,

Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

An October 1988 addendum to the *Cuechart User's Guide* summarizes the installation-dependent options and features not described in the *Cuechart User's Guide*. Cuechart, distributed by Computer Associates (formerly ISSCO), is a cue-and-response graphics program that enables the user to create and draw Tellagraf input files containing information for drawing particular types of charts. On CMS, CTD has merged the vendor-supplied Cuechart software with the Tellagraf software to provide users with an easy-to-use tool for producing quality graphics. The addendum includes a description of this packaging. The addendum supersedes *Using Cuechart, Tellagraf, and Disspla at ANL* (ANL/TM 433).

A December 1988 addendum to *tn3270 for the Macintosh Reference Guide*, Version 2.0, summarizes the specific requirements and features of the tn3270 program that are available to ANL computer users.

A December 1988 addendum to *NCSA Telnet 2.2 for the Macintosh* (UD-98 US-13) summarizes the specific requirements and features of NCSA Telnet that are available to Macintosh computer users at ANL.

A December 1988 addendum to *NCSA Telnet for the PC*, Version 2.2 (UD-99 US-14), summarizes the specific requirements and features of NCSA Telnet that are available to personal computer users at ANL.

Cray Research, Inc. Documents

The *Autotasking User's Guide* (SN-2088) describes how to use autotasking (automatic multitasking) on Cray Y-MP, Cray X-MP EA, and Cray X-MP computer systems running UNICOS Release 4.0 and CFT77 Release 3.0. Autotasking takes a Fortran program as input and transforms it so it can run on multiple processors concurrently and (assuming multiple processors are available) makes the program run faster than it does without autotasking. This *Guide* includes an overview of autotasking (preface), a detailed user's guide for the **fpp** phase (sections 1 through 19), related UNICOS man pages for the **cf77**, **fmp**, **fpp**, and **premult** commands (Appendix A), and software anomalies

identified during development and testing of the initial release (Appendix B).

The *CFT77 Reference Manual* (SR-0018 C) is a reference manual for CFT77 programmers. It assumes substantial reader knowledge of the Fortran programming language. The CFT compiler translates Fortran language statements into binary programs that make effective use of the Cray X-MP computer system. This *Manual* describes CFT77 language in its entirety and related operating system characteristics. This revision (October 1988) includes information on autotasking, the "-e z" or "ON=Z" debug option, the "-A" or "ADDRESS=" option for EMA specification, the "-I" or "INLINE=" option for inline code expansion, the "POSITION=" on the OPEN statement, the REGFILE directive for Cray-2 systems, military-specification bit manipulation functions, the RECURSIVE prefix on FUNCTION and SUBROUTINE statements, and changes in the RANGET and RANSET functions. This revision supersedes *Cray Computer Systems: CFT77 Reference Manual* (SR-0018).

The *UNICOS Overview for Users* (SG-2052 A) provides an overview of the Cray operating system UNICOS and incorporates the new features of the UNICOS 4.0 release. The manual provides introductory information for anyone using UNICOS for the first time. Readers do not need extensive prior knowledge of UNICOS, UNIX, or the Cray operating system COS. Topics include capabilities provided by UNICOS, important features of UNICOS, the basic structure of the UNICOS operating system, and a description of what jobs and output will look like. This publication does not provide a detailed description of UNICOS, nor does it describe all of the operating system's capabilities.

The *DEC VAX/VMS Station Reference Manual* (SV-0020 4.01) provides reference information on the VAX/VMS station, the software that logically links a VAX computer system to a Cray Y-MP, Cray 2, Cray X-MP, or Cray-1 computer system. The *Manual* provides a reference for all station commands and includes descriptions and examples of VAX/VMS station commands available to users and operators. This revision contains reference information on the UNICOS operating system, new station commands, and the station message utility to coincide with Version 4 of the station. This document supersedes the *Cray Computer Systems: DEC VAX/VMS Station Reference Manual* (SR-0020).

The *Cray Y-MP, Cray X-MP, and Cray-1 C Library Reference Manual* (SR-0136 C) describes the C library routines available on Cray computer systems under Cray operating systems COS or UNICOS. This *Manual* is a reference manual for COS or UNICOS programmers. Readers should have a working knowledge of the Cray operating system COS, the Cray operating system UNICOS, or the Unix operating system. This document incorporates the new features of the Cray C library routines available under UNICOS 4.0 or COS 1.17. This revision supersedes *Cray X-MP and Cray-1 Computer Systems: C Library Reference Manual* (SR-0136).

The *UNICOS Performance Utilities Reference Manual* (SR-2040 A) describes performance utilities that run on the Cray-2, Cray X-MP, and Cray-1 computer systems under the Cray operating system UNICOS. The utilities can be used with at least one of the following language processors: Cray Fortran compiler CFT77, Cray Fortran compiler CFT, Cray Pascal compiler, Cray C compiler, and Cray Assembly Language (CAL) assembler. This *Manual* describes the means of invoking these utilities, their options, and their output. As part of UNICOS 4.0, this revised document includes the "hpm" command, a version of "prof" for Cray Y-MP and Cray X-MP systems, and the "CHKMOD" directive under "ftref." This revision supersedes *Cray Computer Systems: UNICOS Performance Utilities Reference Manual* (SR-2040).

The *Programmer's Library Reference Manual* (SR-0113 C) describes Fortran subprograms and functions available to users of Cray X-MP and Cray-1 computer systems running the Cray operating system COS or UNICOS. The *Manual* assumes the user is familiar with either COS or UNICOS and with the Cray Fortran compilers. This revised document incorporates the new features of the UNICOS 4.0 release and the COS 1.17 release running on the Cray Y-MP, Cray X-MP, and Cray-1 computer systems. This revision supersedes *Cray X-MP and Cray-1 Computer Systems: Programmer's Library Reference Manual* (SR-0113).

The *UNICOS System Calls Reference Manual* (SR-2012 4.0) provides descriptions of the system calls for UNICOS programmers. It assumes that the reader has a working knowledge of either UNICOS or Unix and supplements information contained in the other manuals in the UNICOS documentation set. This revised document incorporates the new features of UNICOS Release 4.0

running on Cray computer systems. This revision supersedes *Cray Computer Systems: UNICOS System Calls Reference Manual* (SR-2012).

The *UNICOS Primer* (SG-2010 C) provides introductory information on the Cray operating system UNICOS running on Cray computer systems. (Other Cray Research, Inc. publications cover specific aspects of UNICOS.) This revised document incorporates the new features of UNICOS release 4.0. This printing includes information on major UNICOS extensions to the standard Unix operating system, a discussion of arithmetic facilities provided with the Bourne and C shells, discussions and examples of how the Bourne and C shells process command lines, and detailed example jobs with Fortran, C, and Pascal programs. The manual assumes that the reader has some experience in programming and is familiar with general programming concepts such as looping, files, file editing and editors, and conditional branches. This revision supersedes *Cray Computer Systems: UNICOS Primer* (SG-2010).

The *Segment Loader (SEGLDR) Reference Manual* (SR-0066 E) provides descriptions of the Segment Loader's (SEGLDR's) operation, method of code execution, common block use, and common block assignment. SEGLDR is an automatic loader for overlaid or non-overlaid programs written in the Cray programming language. The glossary explains SEGLDR terminology, but the *Manual* assumes that the reader understands overlays and is familiar with loaders. This revision incorporates the new features of SEGLDR Version 5.0, accommodating the 4.0 release of UNICOS and the 1.17 release of COS. This revision supersedes *Cray Computer Systems: Segment Loader (SEGLDR) Reference Manual* (SR-0066).

The *UNICOS User Commands Reference Manual* (SR-2011 4.0) provides descriptions of commands and application programs for UNICOS programmers. It assumes substantial reader knowledge of either UNICOS or Unix and supplements information in the other manuals in the UNICOS documentation set. This *Manual* describes programs invoked directly by the user or by command language procedures. This revision incorporates the new features of UNICOS Release 4.0 running on Cray computer systems. This revision supersedes *Cray Computer Systems: UNICOS User Commands Reference Manual* (SR-2011).

IBM Documents

The *MVS/370 JCL User's Guide* (GC28-1349-3) describes the job control tasks needed to enter jobs into the operating system, to control the system's processing of jobs, and to request the resources needed to run jobs. To perform the tasks, programmers code job control statements. This document describes how to use these statements, which consist of job control language (JCL) statements, job entry subsystem 2 (JES2) control statements, and job entry subsystem 3 (JES3) control statements. This revision contains maintenance updates for MVS/System Product Version 1 Release 3.6. This *Guide* assists users in deciding how best to perform job control tasks; it does not describe how to code the statements. For an introduction to the statements and for coding information, see the companion book, *MVS/370 JCL Reference* (GC28-1350).

Other Vendor Documents

The *CLIST Programming--Student Workbook* is a summary of the computer-based training course, "CLIST Programming" (CLSTPG). Computer-based training offers students the ability to select a convenient time and place for training, hands-on experience, and the ability to work at their own pace. The *Workbook* is for reference and review of course topics. The organization of the *Workbook* follows the organization of the course; each course session is represented, usually with a summary of the key statements in the session. However, you will not need to follow the *Workbook* page by page as you take the course. *CLIST Programming--Pre-Test and Post-Test* accompanies the *Student Workbook*. It can be administered both as a pre-test to determine if the student needs to take the course and as a post-test to evaluate student proficiency with the course materials.

The *REXX Application Programming--Student Workbook* is a summary of the computer-based training course, "REXX Application Programming" (REXXAP). Computer-based training offers students the ability to select a convenient time and place for training, hands-on experience, and the ability to work at their own pace. The *Workbook* is for reference and review of course topics. The organization of the *Workbook* follows the organization of the course; each course session is represented, usually with a summary of the key statements in the session. However, you will not need to follow the *Workbook* page by page as you take the course.

The *JCL for Programmers--Student Workbook* is a summary of the computer-based training course, "JCL for Programmers" (PGMJCL). Computer-based training offers students the ability to select a convenient time and place for training, hands-on experience, and the ability to work at their own pace. The *Workbook* is for reference and review of course topics. The organization of the *Workbook* follows the organization of the course; each course session is represented, usually with a summary of the key statements in the session. However, you will not need to follow the *Workbook* page by page as you take the course.

The *Using IBM Utilities in Application Programming--Student Workbook* is a summary of the computer-based training course, "Using IBM Utilities in Application Programming" (MVSUTL). Computer-based training offers students the ability to select a convenient time and place for training, hands-on experience, and the ability to work at their own pace. The *Workbook* is for reference and review of course topics. The organization of the *Workbook* follows the organization of the course; each course session is represented, usually with a summary of the key statements in the session. However, you will not need to follow the *Workbook* page by page as you take the course.

BULLETIN

BULLETIN OF DECEMBER 8, 1988

CHANGE TO WYLBUR DESTINATION PROCESSING SCHEDULED FOR DECEMBER 12

On Monday, December 12, 1988, the Computing and Telecommunications Division will install a correction to the way Wylbur prepares destination parameters for MVS batch jobs. Computer users who do not use Wylbur are not affected by this change.

Barring major difficulties, the change will remain on the system; otherwise, we will remove it on Tuesday, December 13, 1988. We believe that most Wylbur users will not be affected by this change. A few Wylbur users may have output printed where they do not expect. You may be affected if you meet the following criteria:

- a) You have issued a Wylbur **SET DEST, RUN...DEST, or PUNCH DEST** command.
- b) You submit MVS batch jobs containing the JCL statement:

```
//*MAIN ORG=destination
```

- c) The destinations specified in a) and b) do not agree.

Before the change, output will print at the destination specified in the JCL statement `//*MAIN ORG=destination`. After the change, output will print at the destination specified by the Wylbur **SET DEST** command. If you do not issue the Wylbur **SET DEST** command and your `LIB#LOGON` file contains no **SET DEST** command, your job output will continue to print at the expected destination.

We recommend that you replace statements of the form

```
//*MAIN ORG=destination
```

with a JES3 format statement like:

```
//*FORMAT PR,DDNAME=,DEST=destination
```

Please call the User Services consultant at (312) 972-5405 if you have any questions or comments regarding this new Wylbur destination change.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD DECEMBER 6, 1988

The chair, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:05 p.m.

RACF for VM. Rich Preston (Computing and Telecommunications) discussed plans for the implementation of RACF on the CMS interactive system. The installation is planned for Monday, January 23, 1989. (CTD will not be able to install RACF for CMS on January 23, 1989.) Before CTD installs RACF on CMS, users should make their current VM directory logon password the

same as the one currently used under RACF. After the installation, users will only be able to use one RACF password on all systems.

The use of RACF will allow identification, verification, and reporting of invalid and valid attempts to access RACF resources. Eventually it will be possible to define and protect resources (such as minidisks, terminals [non-dialup], unit record devices, nodes, and batch jobs). The VM directory logon password will no longer be used during logon, but the RACF password will be necessary.

Program Products Considered for Deletion.

Fred Moszur (Computing and Telecommunications) discussed the possible deletion of program products whose renewal is necessary but receive little use by the user community. CTD primarily uses the V/SPELL package in CMS. Although it provides spell checking within Xedit, there are other products (such as Proofread) that perform the same and additional functions. CTD is considering removing the Watfiv package. Over the past six months, one CMS user and three MVS users have used this product. Because of its limitations in accepting only Fortran 66 and its inability to handle subroutine libraries (such as Disspla) and the inclusion of many of its features in the newer compiler debugging options, it is a candidate for removal. No one at the CUG meeting objected to the removal of these products as long as CTD notifies those users who use them and suggests alternatives. The WATC compiler is getting a small amount of use and its renewal is not up until the summer; so it will remain.

Combining Formatted and Standard Output on the Cray. Doug Engert (Computing and Telecommunications) reported on a method to allow the combining of formatted output and the standard output from Cray jobs. This method involves the use of a new Shell command generated locally and discussed in the December 1988 *Newsletter*.

Changes to DEST in Wylbur. Rich Slade (Computing and Telecommunications) reported on changes to the DEST parameter in Wylbur that CTD will make on December 12, 1988. Instead of changing the MAIN ORG parameter, new FORMAT cards will be used to direct the output. This procedure will use the destination set in Wylbur rather than the destination set on a user's MAIN card. This change should not affect most users, but provides a needed fix. The Computer Users Group asked that CTD send a bulletin to all computer

users reporting when this change will occur (see "Bulletin of December 8, 1988" in this *Newsletter*).

Data Management Subcommittee Meeting Report. Bert Toppel (Engineering Physics) reported on the Data Management Subcommittee meeting held on December 2, 1988. Jerry Davison (Computing and Telecommunications) discussed CTD's plans for modifying the Wylbur FINDDSN exec to permit users to remove permanently disk file migration entries from the directory of the migration tapes. A new exec called PURGEDSN to be run after FINDDSN will submit a batch job to verify the requester's authorization for the selected datasets and to provide an audit trail report of the legal and illegal purge requests that it processes.

Currently, test versions of FINDDSN and PURGEDSN are available by using:

```
EXEC FROM $B36000.FINDDSN
EXEC FROM $B36000.PURGEDSN
```

These test execs will go through the motions of the final products but will not permanently delete any directory entries. **DO FINDDSN** and **DO PURGEDSN** will be available in January 1989.

In the future, CTD will consider eliminating migration tapes containing only datasets that have been eliminated from the directory.

Currently, CTD has no plans to implement on-demand migration. Doug Engert (Computing and Telecommunications) commented that if such a capability became available, CTD would probably charge for the service.

Computing Policy Committee Meeting Report. Cy Adams (Engineering Physics) reported on the Computing Policy Committee (CPC) meeting held on November 10, 1988. Jean Troyer (CTD) gave presentations on several aspects of computer protection at the Laboratory. At Jean's request, the CPC endorsed a procedure that she had described at the October 1988 meeting to report "significant computer incidents." She has sent this recommendation to the Laboratory's Chief Operations Officer. She noted that DOE-CH will conduct an audit in January 1989 of the Laboratory's compliance with DOE order 1360.2A. This audit is in addition to the effort currently underway to bring us into compliance with the Computer Security Act of 1987. On a related issue, the CPC recommended that the Chief Operations Officer send a memo to all Laboratory employees reaffirming the policy

about software licenses. Jean also led a discussion of the recent virus attack and made several recommendations (which the CPC endorsed) of actions that should be taken in anticipation of future emergencies. The remainder of the meeting was a presentation by Larry Amiot (Computing and Telecommunications) on the status of the high-speed data link to the University of Illinois at Chicago and a review by Mike Boxberger (Computing and Telecommunications) of progress on the *ANL Site Response for the DOE FY1991 Information Technology Resources Long Range Plan*.

The meeting adjourned at 3:46 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS MEETING HELD DECEMBER 9, 1988

Chairperson Bryan Schmidt (Energy and Environmental Systems) opened the meeting at 12:15 p.m.

The first topic was the possibility of Graphic Arts hiring a full-time editor. Rich Nixon (Graphic Arts) is interested in how much demand there would be at the Laboratory for this type of service. It was suggested that Rich send out two types of surveys (one to divisions with editors and another to divisions without editors) to determine the divisions' needs. He is also interested in hearing from anyone who might know of an experienced and technically qualified candidate for the job.

Rich then responded to the in-house report entitled *A Customer Perspective on the Role of Argonne's Graphic Arts Department*. This report gives recommendations on the direction that Graphic Arts should take and the services it should provide. Rich stated that Graphic Arts will try to operate like a business without subsidies, offering customers only the services that it can provide on a competitive basis or that are unavailable elsewhere. Customers will be able to use outside vendors for almost any job if they choose. The only exceptions would be for printing jobs that are estimated (by either an outside printer or Graphic Arts) to cost more than \$1,000 or production jobs for exhibits that require the Office of Public Affairs' approval. Note that for ongoing jobs (such as a newsletter) the total cost should be considered, not the cost for printing an individual issue. Of course, any material with sensitive information should not leave the Laboratory. Rich also said that Graphic Arts will

step away from any enforcement-agency type role. After monitoring the jobs it produces for one year, Graphic Arts will reevaluate what services to keep and what services to eliminate.

Liz Stefanski (Materials and Components Technology) asked Rich about the procedures that Graphic Arts follows when it sends work out. Rich answered that they depend on the individual job and the role that Graphic Arts is expected to play. For example, if design work is contracted out, arrangements can sometimes be made for the designers to come to the Laboratory to deal directly with the customer. If only production work is shipped out, however, this direct contact is not necessary.

Lee Wagar (Graphic Arts) gave an update on their computer graphics capabilities. The conversion from the proprietary EPS system to a Macintosh-based system is proceeding. Graphic Arts has ordered about 60 percent of the equipment. The equipment will include Apple Macintosh IIs, Apple Macintosh Pluses, and Apple Macintosh SEs, some of which have already arrived. Also, Graphic Arts has ordered film recorders for the Apple Macintoshes. Graphic Arts has ordered a new, faster image processor (RIP) for the typesetter. A PostScript color printer should be available in the future.

The next Graphic Arts Users Group meeting will be held on Friday, January 13, 1989, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD DECEMBER 14, 1988

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m.

John Mattson (Materials Science) described and demonstrated the beta-release version of a new mathematics program for the Apple Macintosh called MILO. It is a symbolic mathematics program that is an equation typesetter with equation-solving and plotting capabilities. John said that the program was like Mathematica but not as powerful, expensive, or complex to use. It also does not take as much RAM and can be run on the Apple Macintosh Plus, SE, or II. John demonstrated some of the program features including (1) taking the deriv-

ative of a trigonometric function, (2) integrating a trigonometric function in a two-step process, (3) solving algebraic equations with a computer, (4) calculating the expression for the curl of a vector function, and (5) doing basic algebraic manipulation. This last feature ensures that one preserves the correctness of algebraic manipulation. While one must do more work than with Mathematica, MILO is easier to use. The plotting is rudimentary but effective. Overall, John seemed to like this program (which he described as a scratch pad for doing algebra, trigonometry, and calculus).

Tim Kuhfuss (Computing and Telecommunications) discussed the status of connecting Kinetics and Gator boxes from LocalTalk (formerly AppleTalk) networks to the Laboratory-wide Ethernet. A key difficulty is for the case of two LocalTalk networks connected by an AppleTalk bridge and with only one of the networks connected to Ethernet. In this case, the remote LocalTalk network will not be able to communicate with Ethernet unless just the right hardware and software is chosen. Tim has worked with Kinetics FastPath and finds it is okay for simple systems. However, to get some of these other features, he is now testing the Cayman Gator box. If it lives up to its advertised features, it should overcome some of the drawbacks of the Kinetics FastPath box. Soon Tim will be testing the Kinetics FastPath box with the Kinetics Internet Protocol (KIP) software, which should be better than either of the systems.

Some of the difficulties with local area networks were discussed. They were rather technical, and you should talk with Tim before you commit yourself to any one system. Paul Steimle (Energy and Environmental Systems) said that he had used their 230 kilobyte LocalTalk network to back up a 30 megabyte hard disk to their mainframe computer. It took 4.5 hours to do. Now he is thinking that he can back up his Apple Macintosh to an external hard disk for the same price that he could buy a Kinetics box to connect to a mainframe, and the backup would be a whole lot faster.

Argonne is setting up a Virus Action Committee. Bob Kampwirth (Materials Sciences) will chair a subcommittee for the Apple Macintosh. For each ANL division that has Apple Macintosh computers, Bob is trying to identify a person who will implement appropriate virus-control measures for that division. The people and the divisions they represent that have been identified are Bill Shack (Materials and Component Technology), Rodney East (Materials Science), Paul Steimle (Energy and

Environmental Systems), Ron Shepard (Chemistry), Roxanne Izzo (Computing and Telecommunications), and Jackie Copple (Chemical Technology). Contact Jean Troyer (Computing and Telecommunications) if you have no representative and need help.

The program called Vaccine was still cited as the program to use to prevent virus infection of your Apple Macintosh. Detection programs are also available if you have difficulties. Ron Shepard (Chemistry) reported that he had just found the SCORES virus on his computer. The symptom that Ron notes was that he could not open his desk accessories. This symptom has not been reported before as an effect of the SCORES virus.

System 6.02 for the Apple Macintosh is now out. It is available on the two Apple Macintosh IIs in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142). Some people indicated that some parts of the system were not there. The one negative comment on this system was that some older versions of our favorite screen savers caused the system to bomb. Rodney East (Materials Science) was identified as having a complete copy of this system upgrade. It was suggested that a disk with this system upgrade be available to check out with the disks containing public domain software for the Apple Macintosh. You can check out these disks at the Document Distribution Counter (Building 221, Room A-134).

The Programmers Special Interest Group normally meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. Please call John Mattson (Materials Science) at extension 2-5535 for details.

The Excel Special Interest Group normally meets the fourth Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. At the January meeting, the use of Excel for a major chemical-processing model will be discussed. Call Ralph Leonard (Chemical Technology) at 2-3229 for details.

The January meeting of the Macintosh Users Group will be on Wednesday, January 11, 1989. Plans are to have Tektronix people demonstrate their 88000 board, which can increase the Apple Macintosh speed to five to ten times that of the Apple Macintosh IIx. A separate meeting after lunch is planned for in-depth testing of this new board by interested persons.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications) or Ralph Leonard

(Chemical Technology) for further meeting information.

The meeting adjourned at 12:10 p.m.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (OCTOBER 31 THROUGH NOVEMBER 29, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,331	1,313	519
Wylbur	1,614	1,616	461
MVS TSO	54	54	6
CICS	1,614	1,616	62
MVS Batch	2,021	2,011	712
VAX/VMS	411	380	174
Cray	305	301	116
All Systems	2,021	2,011	962

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	13,028	2,144	1,686	16,858	33,232.0	105.32
Wylbur	9,329	378	655	10,362	8,780.5	9.90
MVS TSO	21	0	0	21	15.2	0.01
CICS	20	0	0	20	0.0	0.82
VAX/VMS	6,163	455	111	6,729	9,143.6	74.60
Cray	140	4	3	147	1,919.1	0.05
IBM BATCH						
Class U	9,566	1,905	1,352	12,823	n.a.	32.34
Class W	18,868	1,884	1,440	22,192	n.a.	243.30
Class X	0	1,149	161	1,310	n.a.	81.31
Class Y	0	19	317	336	n.a.	42.72
Class Z	0	1	11	12	n.a.	1.92
Nonmain	12,569	1,255	1,082	14,906	n.a.	0.00
Total	41,003	6,213	4,363	51,579	n.a.	401.59
CRAY BATCH						
u	140	4	3	147	n.a.	0.05
w	2,445	66	38	2,549	n.a.	17.62
x	1,135	39	81	1,255	n.a.	43.90
y	1,227	221	409	1,857	n.a.	104.10
Total	4,947	330	531	5,808	n.a.	165.67
VMS BATCH						
W BATCH	344	156	111	611	n.a.	34.97
X BATCH	22	64	20	106	n.a.	99.98
Y BATCH	2	5	27	34	n.a.	9.45
Total	368	225	158	751	n.a.	144.40

INPUT/OUTPUT

Lines Printed	58,506,616
Local	39,967,757
Remote	31,412,182
Fiche	30,555
Cards Punched-Local Only	8,083
Tape Mounts	3,986
Microfiche Developed	700,942
Microfiche Frames Developed	

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	111	n.a.
Matrix 35mm Color	103	784
Matrix-8 x 10	9	28
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	39	413
35mm Black/White/Sprocketed	0	0
35mm Color	5	40
16mm Black/White/Sprocketed	1	1,017
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	22,872
New Tapes Saved	998
Tapes Released	855
Datasets Exported to Tape	3,062
Datasets Imported from Tape	489

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (OCTOBER 31 THROUGH NOVEMBER 29, 1988)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	16	2	10	1	1	2	
Hrs Unavailable	21.33	1.50	10.45	0.91	7.25	1.21	
MTF/Unscheduled	232.88				698.66	349.33	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	2	10	1	1		
Hrs Unavailable	20.11	1.50	10.45	0.91	7.25		
MTF/Unscheduled	243.88				243.88		
RED IBM 3033							
All Shifts							
Interruptions	16	1	12	1			2
Hrs Unavailable	17.68	0.70	10.36	0.83			5.78
MTF/Unscheduled	351.15						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	16	1	12	1			2
Hrs Unavailable	17.68	0.70	10.36	0.83			5.78
MTF/Unscheduled	123.15						

AVAILABILITY STATISTICS, BY SERVICE (OCTOBER 31 THROUGH NOVEMBER 29, 1988)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	16	1	12	1			2
Hrs Unavailable	17.68	0.70	10.36	0.83			5.78
MTF/Unscheduled	351.15						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	16	1	12	1			2
Hrs Unavailable	17.68	0.70	10.36	0.83			5.78
MTF/Unscheduled	123.15						
NYLBR							
All Shifts							
Interruptions	17	2	9	1	1	3	1
Hrs Unavailable	22.00	1.63	10.31	1.08	7.25	1.65	0.06
MTF/Unscheduled	139.60				698.00	232.66	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15	2	9	1	1	1	1
Hrs Unavailable	20.43	1.63	10.31	1.08	7.25	0.08	0.06
MTF/Unscheduled	81.18				243.56	243.56	
MVS TSO							
All Shifts							
Interruptions	15	2	9	1	1	2	
Hrs Unavailable	21.93	1.63	10.35	1.08	7.25	1.61	
MTF/Unscheduled	232.68				698.06	349.03	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	2	9	1	1		
Hrs Unavailable	20.31	1.63	10.35	1.08	7.25		
MTF/Unscheduled	243.68				243.68		
JES3							
All Shifts							
Interruptions	16	2	9	1	1	3	
Hrs Unavailable	20.86	1.50	9.71	1.00	7.25	1.40	
MTF/Unscheduled	174.78				699.13	233.04	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	2	9	1	1		
Hrs Unavailable	19.46	1.50	9.71	1.00	7.25		
MTF/Unscheduled	244.53				244.53		
CICS							
All Shifts							
Interruptions	1			1			
Hrs Unavailable	0.18			0.18			
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1			1			
Hrs Unavailable	0.18			0.18			
MTF/Unscheduled							
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	5	1	3		1		
Hrs Unavailable	2.63	1.00	1.33		0.30		
MTF/Unscheduled	717.36				717.36		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4	1	3				
Hrs Unavailable	2.33	1.00	1.33				
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	25	10	12		3		
Hrs Unavailable	53.58	39.10	10.71		3.76		
MTF/Unscheduled	222.13				222.13		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14		12		2		
Hrs Unavailable	13.18		10.71		2.46		
MTF/Unscheduled	125.40				125.40		

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (OCTOBER 31 THROUGH NOVEMBER 29, 1988)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	1.8	0.5	0.0	0.4	2.7
272	ADVANCED PHOTON SOURCE	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		1.8	0.5	0.0	0.4	2.7
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO, ENVIR, & MED RES DIV	2.7	2.9	0.3	2.9	8.8
149	HEM DIV-CTR FOR ENVIR RES	6.0	0.1	0.0	-2.9	3.2
174	ENER/ENV/BIO RES PROG DIR	0.2	0.0	0.0	0.0	0.2
190	ENERGY & ENVIR SYST DIV	44.1	21.3	0.3	12.2	78.0
197	OFF OF INTER ENERGY DEV PROGS	0.5	0.0	0.0	0.1	0.6
246	TIS - NATL ENERGY SOFTWARE CT	0.1	0.0	0.0	1.0	1.2
274	ENER/ENV/BIO RES PROG ADM	0.2	0.0	0.0	0.1	0.3
		---	---	---	---	---
SUBTOTAL		53.7	24.4	0.6	13.5	92.2
ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	3.3	0.0	4.1	0.6	8.0
104	EBR-II PROJECT-ILLINOIS	5.3	0.0	0.0	2.3	7.6
107	CHEMICAL TECHNOLOGY DIVISION	2.0	0.1	0.0	1.2	3.3
112	REACTOR ANAL & SAFETY	17.6	0.4	6.3	6.7	31.0
114	MATLS & COMP TECH DIV	9.5	2.2	0.6	4.1	16.4
115	ENGINEERING DIV - ILL	1.6	0.2	0.0	1.4	3.2
116	APPLIED PHYSICS-ILLINOIS	31.3	1.2	23.7	3.7	60.0
117	APPLIED PHYSICS-ANL WEST	5.6	1.0	12.1	-1.1	17.7
118	REACTOR EXP & EXAM DIV	1.8	0.0	0.0	0.2	2.0
119	ANALYTICAL LABORATORY ANL-WES	0.0	0.0	0.0	0.0	0.0
171	ENGRG RES PROG DIR	0.3	0.0	0.0	0.1	0.4
178	FUSION POWER PROGRAM	0.1	0.0	0.0	0.2	0.3
211	ENG DIV-DESIGN ENG DEPT	0.1	0.0	0.0	0.1	0.2
269	CHEM TECH DIV-ANALYTICAL CHEM	0.1	0.0	0.0	0.7	0.8
271	ENGRG RES PROG ADMIN	0.4	0.0	0.0	0.0	0.4
		---	---	---	---	---
SUBTOTAL		79.9	4.2	46.8	25.5	156.4
EXTERNAL						
750	ACK WORK PROJECTS	0.9	0.0	0.3	0.6	1.7
751	ACK WORK PROJECTS-DIST	5.7	0.0	0.0	1.2	6.9
752		10.1	0.0	0.0	5.9	16.0
753		0.0	0.0	0.0	0.6	0.6
754		0.0	0.0	0.0	0.1	0.1
757		0.5	0.0	0.0	0.7	1.2
		---	---	---	---	---
SUBTOTAL		17.1	0.0	0.3	9.2	26.6
OPERATIONS						
143	SUPP SERV DIV - ELEC DEPT	0.2	0.0	0.0	0.7	0.9
148	HUMAN RESOURCES-HEALTH DEPT	1.1	0.0	0.0	0.4	1.5
150	PLANT FAC & SERV - SPEC MATLS	0.2	0.0	0.0	0.1	0.3
161	TECH INFO SERVICES DEPT	1.9	0.0	0.0	2.7	4.6
201	OFFICE OF THE DIRECTOR	0.3	0.0	0.0	0.5	0.8
202	OFFICE OF CHIEF OPER OFCR	0.0	0.0	0.0	0.1	0.1
210	SUPP SERV DIV - CENT SHOPS	0.2	0.0	0.0	0.1	0.3
216	SUPPORT SERVICES DIVISION	0.2	0.0	0.0	0.0	0.2
222	PLANT FAC & SERV-LOGGING FAC	0.0	0.0	0.0	0.1	0.1
232	PLANT FAC & SERV-SECURITY	0.4	0.0	0.0	0.1	0.5
234	SUPP SERV DIV-HEALTH PHY	0.3	0.0	0.0	0.1	0.4
235	SUPP SERV DIV-ENV SAFE HEALTH	1.0	0.0	0.0	0.7	1.7
236	PLANT FAC & SERV-FIRE DEPT	0.0	0.0	0.0	0.0	0.0
260	SUPP SERV DIV-GRAPHIC ARTS	0.2	0.0	0.0	1.2	1.4
275	OFFICE OF PUBLIC AFFAIRS	0.1	0.0	0.0	0.1	0.2
276	OFC PUB AF - MOTN PIC UNIT	0.1	0.0	0.0	0.6	0.7
296	TELECOM COST/RECOVERY	2.7	0.0	0.0	0.7	3.4
315	SUPP SERV DIV-MATLS & SERV	0.1	0.0	0.0	0.1	0.2
316	PLANT FAC & SERV-VEH MAINT	0.1	0.0	0.0	0.1	0.2
317	PLANT FAC & SERV-DRIV&RIG SER	0.1	0.0	0.0	0.0	0.1
319	SUPP SERV DIV-TRAVEL OFC	0.1	0.0	0.0	0.0	0.1
322	SUPP SERV DIV-PROCUREMENT	0.0	0.0	0.0	0.1	0.1
333	QA, ENVIR & SAFETY OFC	0.1	0.0	0.0	0.0	0.1
336	SUPP SERV DIV - INSPECTION	0.0	0.0	0.0	0.0	0.0
400	OFC OF CHIEF FIN OFFICER	13.9	0.0	0.0	6.5	20.4
401	ACCOUNTING	29.0	0.0	0.0	3.0	32.0
402	OFC CHIEF FIN OFCR-DATA ENTRY	0.0	0.0	0.0	0.1	0.1
403	BUDGET OFFICE	0.0	0.0	0.0	0.0	0.0
410	HUMAN RESOURCES DEPARTMENT	10.1	0.0	0.0	1.7	11.7
412	AFFIRM ACTION PROGRAM	0.1	0.0	0.0	0.3	0.4
501	PLANT FAC & SERV-BLDG MAINT	0.0	0.0	0.0	0.1	0.1
502	PLANT FAC & SERV-INSTALLATION	0.0	0.0	0.0	0.0	0.0
503	PLANT FAC & SERV-GROUNDS	0.0	0.0	0.0	0.0	0.0
504	PLANT FAC & SERV-CUSTODIAL	0.0	0.0	0.0	0.1	0.1
505	PLANT FAC & SERV-WASTE MGMT O	0.1	0.0	0.0	0.1	0.2
506	PLANT FAC & SERV-PLANT MGR OF	0.1	0.0	0.0	0.0	0.1
510	PLANT FAC & SERV-UTILITY SYST	0.0	0.0	0.0	0.0	0.0
512	PLANT FAC & SERV-FAC PLNG/ENG	0.7	0.0	0.0	0.2	0.9
530	SITE MGRS OFC-ANL WEST	0.1	0.0	0.0	0.0	0.1
531	PERSONNEL-ANL WEST	0.1	0.0	0.0	0.2	0.3
532	SPECIAL MATLS-ANL WEST	0.7	0.0	0.0	0.0	0.7
533	ACCOUNTING-ANL WEST	0.0	0.0	0.0	0.0	0.0
534	PURCHASING-ANL WEST	0.0	0.0	0.0	0.0	0.0
535	SECURITY - ANL WEST	0.0	0.0	0.0	0.0	0.0
536	SAFETY STAFF-ANL WEST	0.2	0.0	0.0	0.0	0.2
537	INFORMATION SERVICE-ANL WEST	0.0	0.0	0.0	0.0	0.0
538	MATLS HANDLING-ANL WEST	0.1	0.0	0.0	0.0	0.1
550	COMPUTER APPL & SERV - ANL-W	0.3	0.0	0.0	0.0	0.3
551	RAD MONITORING-ANL WEST	0.0	0.0	0.0	0.0	0.0
554	MACHINE SHOP-ANL WEST	0.1	0.0	0.0	0.0	0.1
556	SITE ENGRG-ANL WEST	0.1	0.0	0.0	0.0	0.1
557	PLANT SERVICES-AM-SERVICE REQ	0.1	0.0	0.0	0.0	0.1
558	PLANT SERVICES-AM-FUNCTION	0.0	0.0	0.0	0.0	0.0
559	FOOD SERVICES - ANL WEST	0.0	0.0	0.0	0.0	0.0
561	OFC OF QUALITY ASSURANCE - AM	0.0	0.0	0.0	0.0	0.0
563	TALENT RESOURCE POOL-ANL WEST	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		66.2	0.0	0.0	21.6	87.8
PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	3.4	10.9	3.7	-52.2	-34.1
109	PHYSICS DIV	2.8	0.4	2.9	0.9	7.1
120	CHEMISTRY DIV	2.7	10.1	4.0	1.9	18.6
136	INT PULSED NEUT SOURCE PROG	0.1	0.0	0.0	0.5	0.6
137	HIGH ENERGY PHYSICS DIV	0.9	1.6	0.9	1.8	5.2
139	DIV OF EDUCATIONAL PROGRAMS	0.9	0.0	0.0	0.4	1.3
145	MATHEMATICS & COMPUTER SCI DI	0.3	0.0	0.0	7.5	7.8
245	COMPUTING & TELECOMMUNICATIONS	10.9	0.0	0.0	4.3	15.2
247	CTD - COMMUNICATIONS SERVICES	1.7	0.0	0.0	1.5	3.2
273	PHYSICAL RESEARCH PROGRAM ADM	0.1	0.0	0.0	0.1	0.2
		---	---	---	---	---
SUBTOTAL		23.8	23.2	12.2	-33.3	25.8
TOTAL		242.5	52.3	59.9	36.9	391.6

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
ARPAnet Data Communications Network			
1,200 to 2,400 Bits Per Second Full-Duplex	2-7490	n.a.	972-7490
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
January and February 1989

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering one demonstration and six computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: January 12, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336)
Recommended Documentation for Computer Users at ANL (ANL/TM 379)
Guide to Telecommunications at ANL (ANL/TM 422)

Instructor: Rich Slade

USING COMPUTER-BASED TRAINING

Goals: To provide a demonstration of how to use computer-based training (CBT) courses in CMS to allow prospective students to learn more about available CBT courses.

Length of Demonstration: One hour

Date and Time: January 13, 1989 (Friday), 9:30 a.m. to 10:30 a.m.

Location: Building 221, Room A-261

Instructor: Dave Leibfritz

INTRODUCTION TO WYLBUR FOR TEXT EDITING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for MVS batch processing. To learn about the MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for batch execution.

Length of Class: One 3-hour session

Date and Time: January 13, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

INTRODUCTION TO UNICOS AND SHELL PROGRAMMING

Goals: To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands.

Length of Class: Two 3-hour sessions

Dates and Times: January 24, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.
January 25, 1989 (Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Pete Bertoncini

USING THE CRAY X-MP FROM THE MVS STATION

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the MVS front-end station so that you can submit Cray jobs from CMS, MVS, and VAX/VMS systems.

Prerequisite: "Introduction to UNICOS and Shell Programming" class or equivalent experience with Unix.

Length of Class: Two 3-hour sessions

Dates and Times: January 26, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
January 27, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Al Hinds

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts of VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: February 9, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Instructor: Dave Lifka

USING VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.

Length of Class: One 3-hour session

Date and Time: February 14, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Instructor: Dave Lifka

COMPUTER-BASED TRAINING COURSES

CTD currently offers 49 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CICS Course

CICSPI	CICS Concepts and Facilities
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CMS Courses

CMS	Using CMS
REXXAP	REXX Application Programming
XEDIT	Using XEDIT

Cobol Course

COBOL2	VS COBOL II: Making the Transition
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Office System Course

OFFICE	Office System Skills and Concepts
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PROFS Courses

PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
PGMJCL	JCL for Programmers
MVSUTL	Using IBM Utilities in Application Programming
SORTMRG	Using SORT/MERGE Utilities

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

CLSTPG	CLIST Programming
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 20

NUMBER 2

OSITCRY

FEBRUARY 1989

FEB 28 1989

UNIVERSITY OF ILLINOIS
AT URBANA CHAMPAIGN

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COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Telecommunications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
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Materials and Plant Systems Group	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 4.7, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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COMPUTING COMMENTS

NEW GRAPHIC ARTS DIRECTION: APPLE MACINTOSH-BASED SERVICES

The Graphic Arts Department has chosen Apple Macintosh-based computer products for both composition and presentation work. This direction enables Graphic Arts to concentrate efforts on value-added services, advice, and assistance with design and layout. This decision reflects a general trend in the electronic publishing and presentation visuals industries to move away from large, proprietary systems to smaller, off-the-shelf equipment.

Graphic Arts equipment includes Apple Macintosh SEs, Apple Macintosh Pluses, Apple Macintosh IIs, an Apple LaserWriter Plus, and a Linotype L300P typesetter. Graphic Arts software includes Microsoft Word, Allan Bonadio Expressionist, Aldus PageMaker, Claris MacDraw II, Adobe Illustrator, Cricket Graph, and Adobe Fonts. Future Graphic Arts acquisitions will include more Apple Macintosh SEs and Apple Macintosh IIs, color PostScript paper output, a film recorder, an 11-by-17 inch Apple LaserWriter, Quark Xpress, Aldus Persuasion, and Freehand.

There are three alternate ways to get documents and publications typeset in Graphic Arts:

1. Full-Service: Give Graphic Arts a manuscript to design, keyboard, draw, and lay out.
2. Value-Added Service: Give Graphic Arts a partially completed job (send most of the figures and an ASCII file of approved text for layout).
3. Self-Service: Send a PostScript file directly to the Linotype L300P typesetter (1250 dots-per-inch resolution) in Graphic Arts (see below).

There are three ways to send files to the Linotype L300P typesetter in Graphic Arts:

1. Send a PostScript file from any VAX or IBM computer on the Argonne NJE network to a RADS station located in Graphic Arts (ANLOS RM111PR1).
2. Bring in your Apple Macintosh disks with your document or a PostScript file.

3. Bring in your IBM Personal Computer disks with your document or a PostScript file.

Within the next few months, Graphic Arts will be able to produce output directly on film as well as on paper. Also, Graphic Arts is conducting experiments to produce typeset output directly to a plate for an offset press.

For more information, contact Lee Wagar (Graphic Arts Customer Service) at extension 2-5603.

COMPUTING CLASSES SCHEDULED FOR FEBRUARY 1989

During February 1989, the Computing and Telecommunications Division (CTD) will offer two classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Using VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

COMPUTER PROTECTION

ANTI-VIRUS TEAMS FORMED

Because of the Laboratory's experiences with the virus that hit several national computer networks in early November 1988, CTD has established teams for each major operating system at the Laboratory to prevent a successful attack or to mitigate the effects of such an attack. Team membership includes system experts both within and outside CTD. The team leaders and their telephone numbers are:

Apple Macintosh Family	Paul Steimle (EES)	2-4148
IBM Personal Computer Family	Roxanne Izzo (CTD)	2-7205
MVS Systems	Doug Engert (CTD)	2-5444
Unix Systems	Rick Stevens (MCS)	2-3378
VM Systems	Rich Preston (CTD)	2-7497
VMS Systems	Rich Raffenetti (CTD)	2-8497
Cray Computer	Joe Midlock (CTD)	2-5447

If you are knowledgeable about one of these operating systems and would like to volunteer to help, call the leader of the appropriate team.

Report all viruses, worms, attempted system break-ins, or other incidents that represent a threat to ANL computer systems to Jean Troyer (Computer Protection Program Manager) at extension 2-7440.

COMPUTER INCIDENT REPORTING PROCEDURES ISSUED

Under the requirements of DOE Order 1360.2A (issued in the summer of 1988), the Laboratory has developed computer incident reporting procedures. E. Gale Pewitt (Chief Operations Officer) sent a copy of *ANL Procedure for Reporting Computer Security Incidents* (a copy of which is attached to this *Newsletter*) to all Department Heads and Division Directors. They, in turn, distributed the procedures to the members of their organizations who use computers.

There are three levels of computer incidents with distinct reporting procedures: (1) minor, (2) important, and (3) significant. In general, report all incidents occurring on the central computers and any other incidents (other than those

defined as minor) to Jean Troyer (Computer Protection Program Manager) at extension 2-7440.

EMPLOYEE RESPONSIBILITIES FOR COMPLYING WITH SOFTWARE LICENSES

Please be aware that Laboratory policy and DOE policy prohibit the unauthorized duplication and use of computer software. A Laboratory policy memo on "Employee Responsibilities for Complying with Software License" (dated November 23, 1988, and sent to all employees from E. G. Pewitt, Chief Operations Officer) states:

As you are aware, the unauthorized duplication and use of computer software is contrary to Laboratory and DOE policy and violates the U.S. Copyright Law. Unless otherwise specified in a license agreement, the funds used to purchase a software product represent a license fee for the use of one copy of the software product. Should the software be reproduced or duplicated without authorization, then the U.S. Copyright Law has been violated, making the infringement a Federal offense. Civil damages for unauthorized software copying can be as much as \$50,000, and additional criminal penalties such as fines and imprisonment can be imposed.

Check to be sure any use you make of software complies with the terms and conditions imposed by the vendor.

CMS NEWS

CMS TO USE RACF PASSWORDS

On Monday, March 20, 1989, your CMS password will no longer work. You must use your RACF password instead. On that date, CTD will install the IBM Resource Access Control Facility (RACF) on the CMS interactive system. RACF will require CMS users to provide their RACF password (that is, the same password you use now to logon to CICS and Wylbur or to submit MVS batch jobs) at logon time. VM directory logon

passwords, which a CMS user can change with the **DIRMAINT PW** command, will no longer be used. CMS users will be able to change their RACF password when logging on or with the **PASSWORD** operand of the CMS **RACF** command.

CTD has deferred the second stage of the RACF installation on the ANLVM system, which will RACF-protect new minidisks as Account Services allocates them and will eliminate the need for VM directory link passwords. We will provide more details in future *Newsletters*.

Each CMS user has an MVS batch account with a RACF password. We recommend that before Monday, March 20, 1989, you verify your RACF password by logging on and logging off either Wylbur or CICS. If you do not know your RACF password, contact your cost center RACF administrator, who will issue you a new expired RACF password that you must change at your first logon. If you need help to identify your cost center RACF administrator, contact the User Services consultant at extension 2-5405.

PROFS EXTENDED MAIL AVAILABLE FOR TESTING

CTD has installed the PROFS Extended Mail feature for testing by PROFS electronic mail users in CMS. PROFS Extended Mail with the IBM Transmission Control Protocol/Internet Protocol (TCP/IP) for VM software extends the "reach" of electronic mail users by enabling PROFS to send mail to ANL Unix systems, to users on a variety of national networks (including ARPAnet and NSFnet), and to networks accessible from BITnet via gateways. Previously, PROFS users could only address mail to users on the Laboratory-wide NJE network and the BITnet university network.

Currently enrolled PROFS users can test the new extended mail capabilities by first issuing the **TESTTCP** command. To send mail to ANL Unix users or to users on external networks, you must first create a "userid NAMES" nickname file. Your nickname file must have an :EMAIL entry for each user you intend to reach on an ANL Unix system or on an external network. The :EMAIL tag specifies an address of the form

userid@host.div.ANL.GOV

with no intervening blank characters.

PROFS will continue to use nicknames defined in your OFS OFSMCNTL file but now will also use your "userid NAMES" nickname file for the new extended mail capabilities.¹ The simplest way to create and maintain your NAMES file is by issuing the command **NAMES** and by filling in the full screen fields as indicated in Figure 1.

```

===== NAMES FILE EDITING =====
Fill in the fields and press a PFkey to display and/or change your NAMES file

Nickname: PETE   Userid:      Node:      Notebook:
              Name:
              Phone:
              Address:
              :
              :
              :
List of Names:
              :
              :
              :

You can enter optional information below. Describe it by giving it a "tag".
Tag: EMAIL      Value: berton@alliant.mcs.anl.gov
Tag:             Value:

1= Help      2= Add      3= Quit      4= Clear      5= Find      6= Change
7= Previous  8= Next     9=         10= Delete   11=         12= Cursor
-----

```

Figure 1: Names Screen

Notes generated by PROFS Extended Mail display a slightly different format for electronic mail addresses of recipients. Additionally, users of PROFS extended mail who send mail to BITnet users will no longer receive the informational messages as mail is forwarded through the BITnet network.

On Monday, March 13, 1989, CTD plans to put PROFS extended mail into production, at which time the **TESTTCP** command will be unnecessary.

NEW CMS NOTE AND SENDFILE COMMANDS AVAILABLE FOR TESTING

CTD has installed the IBM Transmission Control Protocol/Internet Protocol (TCP/IP) program for VM in a test mode (see "Plans To Replace Fibronics TCP/IP Access to VM" in this *Newsletter*). As a result, new **NOTE** and **SENDFILE** com-

¹ Currently, you may not use the same entry in your "userid NAMES" file for use with both PROFS Extended Mail and the **NOTE** command. If a nickname entry has the :userid and :node fields filled, PROFS will not build a proper address, and the VM system will reject your note.

mands are available for user testing. The new **NOTE** and **SENDFILE** commands allow ANL users to send mail to recipients on ANL Unix systems and external national networks (such as ARPAnet, NSFnet, and MFEnet). The new commands accept Internet domain style electronic mail addresses of the form:

```
userid AT host.div.ANL.GOV
```

You may also create a nickname in your "userid names" file for recipients you communicate with often. The **NAMES** command will not permit you to specify more than eight characters in the field provided for the :node information. You will need to edit your "userid NAMES" file and to create entries of the form:

```
:nick.DOE :name.John Doe
          :userid.doe
          :node.antares.mcs.anl.gov
```

The new **NOTE** and **SENDFILE** commands will replace the versions of these commands currently made available with the GATEWAY exec. Users of the new **NOTE** and **SENDFILE** commands will no longer receive informational messages as mail is forwarded through the BITnet network. CMS users can test the new **NOTE** and **SENDFILE** commands after entering the command **TESTTCP**.

On Monday, March 13, 1989, the new commands will become production, at which time we will remove the GATEWAY versions from the system. We encourage users to test the new commands and report any difficulties to the User Services consultants at extension 2-5405.

COST CENTER SUMMARY (COSTCSUM) TOOL NOW AVAILABLE IN CMS

The Cost Center Summary (COSTCSUM) tool that reports computer charges for a cost center grouped by activity code and userid is now available in CMS. Categories reported include MVS batch, Wylbur, TSO, CMS, the VAX 8700, the Cray, disk storage on each operating system, the average system usage multiplier, graphics, and miscellaneous charges. You can request reports for the current month-to-date or for a past month.

To invoke the COSTCSUM tool in CMS, enter:

```
COSTCSUM
```

For information about the COSTCSUM tool, enter:

```
HELP COSTCSUM
```

The COSTCSUM tool is also available on MVS Wylbur and the VAX 8700.

CRAY NEWS

CRAY MVS STATION STATUS COMMAND IMPROVED

CTD has improved the Cray MVS Station **STATUS** command so that users may inquire about the total NQS batch job workload. Previously, you could only inquire about your own NQS batch jobs and file transfers with the MVS Station **STATUS** command. Now, you can inquire about all NQS jobs and file transfers to obtain an estimate of the total batch backlog. To inquire about an entire batch queue, enter the command:

```
STATUS,qualifier
```

where "qualifier" represents one of the following UNICOS batch queue qualifiers:

- E** Jobs active or queued for execution.
- I** Jobs being input to UNICOS from a front-end station.
- O** Jobs returning output to a front-end station.
- R** Files being received in UNICOS from a station in response to a UNICOS **acquire** or **fetch** command.
- S** Files UNICOS is sending to a station in response to a UNICOS **dispose** command.

If you do not designate a batch queue qualifier, the **STATUS** command inquires about all queues. Note that you cannot abbreviate the **STATUS** command if you include the comma; but, if you omit the comma and all queue designators, you can abbreviate the command to its first three characters.

Use the following techniques to enter the MVS Station **STATUS** command from various systems; the following commands each request the status of all jobs, regardless of owner, that are actively executing or waiting to execute in UNICOS.

- In ANLOS MVS Wylbur, enter (in uppercase):

TO OPERAT CMD ANLOS CRAY STATUS, E

- In ANLVM CMS, enter:

CRAYCMD STATUS, E

- In ANLOS MVS TSO, enter (at the TSO "READY" prompt):

CRAYCMD STATUS, QUEUE (E)

Alternatively, enter the **CRAY** command (at the TSO "READY" prompt) to invoke the TSO **CRAY** command processor; then enter the **STATUS** subcommand (at the **CRAY** command processor "CRAY:" prompt):

CRAY
STATUS, QUEUE (E)

- In ANLOS MVS batch, submit the following batch job:

```
//JOBNAME JOB CLASS=C, USER=BNNNNN, PASSWORD=RACFPWD
//STATION EXEC CRAYCP
//SYSIN DD *
CRAY
STATUS, QUEUE (E)
/*
```

If you submit this batch job from Wylbur, you can omit the **USER** and **PASSWORD** parameters. BITnet users should submit this job to the address: **JOB** at **ANLOS**.

- From the central VAX cluster, it is usually more convenient to enter your commands through the VAX/VMS Station (ANLVG). For instructions on entering your inquiry through the VAX/VMS Station, enter (in a VAX/VMS session on ANLVG):

CRAY HELP

If the link between the VAX/VMS Station and the Cray X-MP is not operational, you can inquire through the MVS Station by entering (in a VAX/VMS session on ANLCV1):

SEND COMMAND ANLOS CRAY "STATUS, E"

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM PARALLEL TEST UPDATE

In January 1989, the Integrated Financial System (IFS) Project Team began parallel testing the new financial system with full production volume. Parallel testing (running real data through both the current and the new system at the same time) verifies the accuracy of the new computer system. The output obtained from the new IFS system should match the output from the current Financial Information System (FIS), except for any financial accounting procedure changes made in the new system. The primary user of the financial systems, the Office of the Chief Financial Officer, will feed data to the system and will check the output.

When the test of January's financial data is complete, the Project Team will process February's data as another parallel test. The Office of the Chief Financial Officer and Management Information Systems (MIS) of CTD have determined that data from two months should be processed before the cutover to IFS as the Laboratory's primary financial system. If the Project Team is not satisfied with the results of the January and February 1989 tests, testing will continue through March 1989.

The Financial Reporting Working Group (FRWG) has completed the initial analysis of the financial reports produced by the current systems. The FRWG recommends which of the current reports IFS should produce. In addition, the FRWG has produced preliminary classifications to help the Project Team prioritize which reports are necessary before IFS goes production. All financial report users should hear from the FRWG members soon to verify the accuracy of these classifications. As reported in the January 1989 *Newsletter*, user training should begin in February 1989. When the IFS Project Team has determined the final schedule and location, the Project Team will contact FMS users to arrange class registration.

FRWG members will report the progress on all phases of the project at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

VS FORTRAN VERSION 2.3.0 BECOMES PRODUCTION IN MVS BATCH

In the September 1988 *Newsletter*, CTD announced that it would make Version 2.3.0 of VS Fortran the production version on Monday, October 17, 1988. Before that Monday, CTD discovered a potential incompatibility between the Version 1 and Version 2 runtime libraries. After checking, IBM has informed us that the Version 2 runtime library is compatible with programs compiled with Version 1.

Therefore, CTD will make VS Fortran 2.3.0 the production version on Monday, February 6, 1989. Users should continue to test the new compiler and to report difficulties to the User Services consultants at extension 2-5405.

VS Fortran 2.3.0 is documented in *VS Fortran Version 2 Language and Library Reference* (SC26-4221) and *VS Fortran Version 2 Programmers Guide* (SC26-4222), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

PURGE UNWANTED OFFLINE DATASETS ON TAPE

In response to user requests for the capability to delete unwanted offline datasets on tape, CTD has implemented new FINDDSN and PURGEDSN Wylbur execs. These new Wylbur execs allow users to manage their own offline datasets by removing index entries for datasets that they no longer want. CTD has modified the Wylbur FINDDSN exec to prompt you if you want to discard entries for unwanted offline datasets. If you choose to do so, edit the list by removing those file entries that you no longer want. Once you have completed this editing, invoke the PURGEDSN exec by entering:

DO PURGEDSN

The PURGEDSN exec will display a list of all the offline datasets that you have selected for permanent deletion. Then the system will prompt you to submit a batch job to delete those files from the migration tape index. The batch job will perform various security checks and will create an audit

trail report of the legal and illegal purge requests that it processes. Once the system has purged these index entries, they will no longer appear in the directory listing when you invoke FINDDSN. Help is available for these two execs by entering (in Wylbur):

HELP FINDDSN

or

HELP PURGEDSN

TELECOMMUNICATIONS NEWS

ARGONNE BEGINS CONVERSION TO NEW INTERNET ADDRESSES

Because of the rapid growth of the Transmission Control Protocol/Internet Protocol (TCP/IP) local area networks at Argonne, CTD is coordinating the migration of ANL systems to a new and larger Internet address space. ANL is running out of IP numbers in the existing address space. This migration will provide additional addresses to add new connections to the ANL TCP/IP network. Currently, we have 32 Class C networks of 256 addresses, each assigned to us (192.5.170.nnn through 192.5.201.nnn). The Network Information Center at Stanford Research Institute has now assigned Argonne Class B Internet network numbers to permit a total of 65,536 addresses at ANL. CTD will administer the new addresses that will be of the form 130.202.nnn.nnn.

The conversion will occur in phases beginning on Monday, February 20, 1989. The first phase will convert addresses of the ANL TCP/IP backbone network (currently 192.5.170.nnn) to a subset of the Class B addresses (a subnet) and will affect computer systems in Chemistry, Computing and Telecommunications, Electronics, Energy and Environmental Systems, Engineering, Materials and Components Technology, Materials Science, and Reactor Analysis and Safety. With proper coordination with divisional Unix administrators and Apple Macintosh network administrators, disruption of Internet access to and from Argonne computers will be minimal. The network administrators will schedule later phases to convert other Class C TCP/IP networks in Chemistry, Energy and Environmental Systems, and Mathematics and Computer Science to accommodate their users.

At the time of the conversion, workstation users will need to take specific actions:

- Users of IBM Personal Computers with National Center for Supercomputing Applications (NCSA) Telnet must edit their CONFIG.TEL file and replace their old IP address with a new address to be obtained from the CTD Computer Network Section (extension 2-7236).
- Users of Apple Macintosh personal computers with either the NCSA Telnet or tn3270 programs must start their programs and keep the mouse button depressed. When the configuration screen appears, blank out the old IP address and replace your old IP address with your new address. See your divisional Apple network administrator for advice on how to reconfigure your address.
- Users of Sun and other Unix workstations must coordinate with their Unix administrators.

Users who use TELNET or FTP to connect to ANL computers should not specify IP addresses to connect to those computers but instead should specify the appropriate domain name. For example:

```
XMP.CTD.ANL.GOV
ANLCV1.CTD.ANL.GOV
ANLVM.CTD.ANL.GOV
```

Within ANL, you can abbreviate these domain names to XMP, ANLCV1, and ANLVM, respectively. By using names instead of IP addresses, the ANL Name Service will correctly resolve IP addresses both before and after the conversion.

PLANS TO REPLACE FIBRONICS TCP/IP ACCESS TO VM

CTD plans to replace Fibronics hardware and software that currently provides the Transmission Control Protocol/Internet Protocol (TCP/IP) network access to the IBM Virtual Machine (VM) operating system with new hardware and software. The Fibronics capabilities include Telnet terminal access (line-at-a-time and IBM 3270 full screen emulation) and FTP file transfer protocol for transferring files to and from VM-user minidisks. CTD is testing new IBM TCP/IP for VM software that will replace the Fibronics hardware and software. With the new IBM TCP/IP software, you can (1) exchange electronic mail between CMS and

TCP/IP networks and (2) use Internet Domain Service to reach hosts on the nationwide Internet network. The new TCP/IP software is a prerequisite for the installation of RACF for VM. On Monday, March 13, 1989, we plan to cut over to the new IBM TCP/IP software.

The new VM TCP/IP program will provide Telnet terminal access, FTP file transfer, and electronic mail capabilities. Telnet capabilities of the VM TCP/IP program work either with line-at-a-time access or full screen emulation programs like tn3270 for Sun workstations and Apple Macintosh personal computers. We have also acquired the new SIM3270 TCP/IP product to work in tandem with the VM TCP/IP program to provide full screen emulation for Telnet users who do not have tn3270 capabilities. We believe that the only users who require SIM3270 TCP/IP full screen emulation are users of the National Center for Supercomputing Applications (NCSA) Telnet for the IBM Personal Computer. Anyone who now uses other than a VT100 terminal or VT100 terminal emulation package with the Fibronics full screen emulation should contact the User Services consultant at extension 2-5405, so that we can define your terminal to work with the new SIM3270 TCP/IP product. The SIM3270 implementation is not as good as the Fibronics full screen emulation implementation. IBM and Simware are working to correct these deficiencies. Until they do, we will continue to make the Fibronics hardware and software available for full screen emulation only. NCSA users will be able to Telnet to the host ANLVM-KNET after March 13, 1989, to access the Fibronics full screen emulation capability.

In addition to the standard FTP file transfer capability, the IBM VM TCP/IP program also provides a full function TCP/IP mail transfer capability. Users on the ANL TCP/IP network (and on TCP/IP networks like the National Science Foundation network [NSFnet], which are connected to the ANL TCP/IP network by gateways) will be able to send electronic mail to CMS users and to all of the Network Job Entry (NJE) nodes (including BITnet nodes). Similarly, CMS users (including PROFS users) and all users on NJE nodes connected to ANLVM (including BITnet nodes) will be able to send mail to hosts on the ANL TCP/IP network (that is, to any computer in the domain ANL.GOV). See "PROFS Extended Mail Available for Testing" and "New CMS **NOTE** and **SENDFILE** Commands Available for Testing" in this *Newsletter*.

CMS users can test the VM TCP/IP program capabilities by issuing the **TESTTCP** command.

Users who use the **TELNET** command to logon to CMS can test and use the new IBM and old Fibronics KNET TCP/IP software products according to the following schedule:

Before March 13, 1989

```
telnet anlvm      (uses Fibronics KNET product)
telnet anlvm-bti  (uses IBM product)
```

After March 13, 1989

```
telnet anlvm      (uses IBM product)
telnet anlvm-knet (uses Fibronics KNET product)
```

Help is available online for FTP and Telnet. For a list of available commands, enter:

HELP FTP <menu>

or

HELP TELNET

FTP requires that CMS filenames conform to the convention filename.filetype.filemode. Users who use the FTP command to access VM minidisks from remote systems should be aware that the VM TCP/IP program honors VM minidisk passwords. VM minidisks with the default READ=ALL and WRITE=NONE passwords will be accessible in read-only mode, and you cannot store files on that minidisk. VM minidisks with WRITE passwords require the FTP command **QUOTE ACCT writpass** (where "writpass" is your write password) before you can store files on that minidisk. Use the change directory FTP command **CD Bnnnnn.xxx** (where "Bnnnnn" is your userid and "xxx" is a virtual address) to select a minidisk other than your 191 minidisk.

The VM TCP/IP program capabilities are documented in *The IBM Transmission Control Protocol/Internet Protocol for VM Command Reference Manual* (GC09-1204), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,590 computers at over 910 sites. Since the last *Newsletter* article in December 1988, the following universities and organizations have joined BITnet:

American Geophysical Union--Washington, D.C.
 Argentine National Atomic Energy Commission
 Catholic University of Valparaiso--Chile
 Chilean National Petroleum Enterprise--Santiago
 Center for Theoretical Physics--Marseille
 Curie Institute--Paris
 East Texas State University
 Fairfield University
 German Climate Research Center--Hamburg
 Idaho National Engineering Laboratory (EG&G)
 Institute for Technological Investigations--Sao Paulo
 ITAM--San Angel, Mexico
 Italian Research Center (CNR) for Biology--Rome
 Johnson & Johnson--Raritan, New Jersey
 Julio Mesquita State University--Sao Paulo
 King Abdulaziz City for Science and Technology
 Korea University--Seoul
 Meiji University
 National Taiwan Institute of Technology
 National Taiwan University
 Papal Catholic University of Chile--Santiago
 Purdue University--Calumet Campus
 Senate Legislative Information Center--Mexico
 Seoul National University
 State Foundation for Defense and Investigation--
 Sao Paulo
 Technical University Santa Maria--Valparaiso
 University of Campinas--Sao Paulo
 University of Miami--Florida
 University of North Carolina--Wilmington
 University of Pau and Pays de l'Ardour
 University of Sao Paulo
 Wellesley College
 Western Kentucky University
 Wheaton College--Norton, Massachusetts
 Widener University
 Worcester Foundation for Experimental Biology--
 Massachusetts

For a complete list of organizations in the BIT-net network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

HELP BITNET NODES

VAX/VMS NEWS

ANSYS VERSION 4.3A ON THE VAX 8700 COMPUTER

The latest version of the ANSYS finite element analysis program from Swanson Analysis System, Inc. (Version 4.3A) is available on the central VAX 8700 computer. Users of ANSYS 4.2 in the IBM MVS batch system should have already converted to use the VAX 8700 version of ANSYS. This article contains directions for accessing ANSYS programs on the VAX 8700, displaying ANSYS graphics, and converting from ANSYS 4.2 on the IBM system to ANSYS 4.3A on the VAX 8700.

ANSYS Version 4.3A is a corrective update of Version 4.3 that offers significant improvements and enhancements over Version 4.2. There are new commands for easier model construction in the preprocessing phase, new numerical procedures to improve computational efficiency and accuracy in the solution phase, and additional commands for easier information storage and retrieval in the post-processing phase. Furthermore, the addition of new analysis types and elements has expanded the overall capabilities.

You can use ANSYS Version 4.3A on the VAX 8700 both interactively and in batch; only batch use was possible on the IBM system. The interactive capability is particularly useful for the preprocessing and postprocessing phases of an ANSYS run and offers a major advantage over the batch-only operation.

Access to ANSYS Programs

To use ANSYS either in a batch or an interactive session, you must first create the ANSYS environment by executing the **SETUP** command:

```
$ SETUP ANSYS
```

You may then execute ANSYS and related programs repeatedly, in the same session, without executing **SETUP** again. The standard or default

ANSYS program solves finite element problems with a maximum ANSYS "wavefront" of 580. You can use a larger version that solves problems with a maximum wavefront of 2,000, if you include the **LARGE** option on your **SETUP** command:

```
$ SETUP ANSYS /V=LARGE
```

You can execute the default version in a standard VAX 8700 account; to execute the large version, Account Services must extend your account to allow use of enlarged paging file quota. If you need the large version, contact Account Services at extension 2-5425 and request the larger page file quota for ANSYS.

Executing ANSYS

To begin an interactive ANSYS 4.3A session, enter the commands:

```
$ ANSYS
/INT
```

Then begin your programming.

To use ANSYS in batch, enter the command:

```
$ ANSYS_SUBMIT [/V=LARGE]
```

Include the **/V=LARGE** option if you need it. The command executes a procedure that prompts you for the information needed to submit your ANSYS job to a VAX 8700 batch queue. You can submit your job to any of six VAX 8700 batch queues and can select an appropriate CPU time limit. Be sure to allocate sufficient CPU time or disk space to complete the job, or your job will end abnormally before all output files are complete. To learn about the available batch queues and the scheduling policy, enter:

```
HELP BATCH
```

Then enter:

```
HELP RATES VAX
```

Displaying ANSYS Graphics

You may store the plots generated during an ANSYS run in a graphics file for later retrieval, or display them at the time of generation during an interactive session. The ANSYS **/SHOW** command affects the routing and other graphics display parameters. Refer to the *ANSYS Revision 4.3A*

Graphics Supplement for the correct form and usage of this command.

To obtain hard copies of the plots stored in an ANSYS graphics file "filename.ext," enter the commands:

```
$ ASSIGN/USER filename.ext FILE33
$ PLOT33
$ HARDCOPY POPFIL.DAT
```

The PLOT33 program converts the graphics data in your file to POPFIL.DAT. The **HARDCOPY** procedure sends the graphics coded in POPFIL.DAT to graphics devices by running a batch job in the IBM MVS system. The **HARDCOPY** command may be used in interactive and batch modes. For a description of the **HARDCOPY** command parameters, enter:

HELP HARDCOPY

If display to a graphics terminal that is not available in ANSYS is necessary, enter the following commands after executing PLOT33:

```
$ ASSIGN/USER POPFIL.DAT META
$ ANYPOP
```

ANYPop is a graphics utility that displays the META.DAT file to many interactive graphics devices. ANSYS will display graphics on Tektronix terminals and terminals with the DEC ReGIS graphics protocol.

ANSYS Utilities

The **SETUP** command also makes the following ANSYS utility programs available:

PLT33I: Displays FILE33.DAT to graphics devices on which ANSYS can display plots (see above).

PLOTHP: Converts FILE33.DAT to Hewlett-Packard graphics language (HPGL) for routing to Hewlett-Packard plotters.

TRAN33: Companion program for PLOTHP used to shorten HP plotting times.

PLOT33: Converts FILE33.DAT to a graphics metafile, POPFIL.DAT, that you may use with other Argonne graphics post-processors.

To execute any of the utility programs, enter the program name at the VMS prompt. See the ANSYS documentation for detailed directions for using the utilities.

Converting from ANSYS 4.2 to 4.3A

You must modify the preprocessing and post-processing input files developed in the IBM ANSYS Version 4.2 environment before you run them on the VAX 8700 computer. By careful study of the system response to each command or the documentation, you can detect changed or modified commands and make the appropriate corrections. However, the solution files (FILE12.DAT) processed by the old and new ANSYS versions are completely compatible. To transfer a Version 4.2 solution file (FILE12.DAT) to the VAX 8700 ANSYS 4.3A environment, you first convert the IBM version file from binary to coded, then transfer the coded file to the VAX computer, and finally convert the file back to the VAX binary form. This procedure is a general one for transferring ANSYS files between various computers with different operating systems.

The ANSYS commands that you would execute in the IBM environment to convert FILE12.DAT (binary) to FILE14.DAT (coded) are:

```
/AUX1
BCDCNV
FINISH
```

To send the file from your MVS ANSYS 4.2 batch job to the VAX 8700 computer, include a **//*FORMAT** statement after your **JOB** statement. For example, to send your coded FILE14.DAT file to user B12345, use the following statement:

```
//*FORMAT PU,DDNAME=FT14F001,DEST=ANLCV1.B12345
```

This procedure works because the coded data is limited to 80 characters per record. The file transferred to the VAX 8700 account of account B12345 will appear in the Network Job Entry (NJE) receive subdirectory, [B12345.READER].

After transferring the coded file FILE14.DAT to the VAX 8700 computer, move it to your work directory and enter the following commands in either an interactive or batch ANSYS job to convert it back to a binary file FILE12.DAT:

```
/AUX11
BINCNV
FINISH
```

Documentation

The *ANSYS Execution Guide (ANSYS User's Manual--Appendix S) Revision 4.3A VAX/VMS Version* is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). We will order ANSYS reference manuals on request.

SAS RELEASE 5.18 INSTALLED AS A TEST VERSION ON THE VAX 8700

CTD has installed the new VMS version of the Statistical Analysis System (SAS) Release 5.18 on ANLCV1. This version delivers several new features and performance enhancements. It will be available for testing until March 1, 1989, when it will replace SAS Release 5.16 as the production SAS version on the 8700.

SAS has made performance improvements in SAS dataset input/output (I/O) and in processing large raw data files. New SAS features available with this release are:

- Apple Macintosh Application for processing SAS/Graph metafiles. Now you can incorporate SAS/Graph output in Apple Macintosh PICT applications. SAS has included an Apple Macintosh application that allows you to convert a SAS metafile to a file with PICT format. The application file is METH.HQX and is in the directory SAS\$ROOT:[USER.MACINTOSH]. For additional information, see *SAS Technical Report P-186, Producing Macintosh Graphics from SAS/GRAPH Output*. CTD is looking for users to help test this capability.
- SAS VMS Language Sensitive Editor (LSE) templates to assist with entry of a SAS DATA step and with many other statistical procedures.
- New SAS/Graph drivers. SAS/Graph PostScript drivers can capture PostScript output in an external file that you can route to a PostScript device. SAS has provided five resolutions (72, 150, 300, 720, and 1200 dpi). To use the PostScript drivers, see the discussion of minicomputer printer connections in Chapter 7 of *SAS Technical Report P-178, Additional SAS/GRAPH Hardware Interfaces, Release 5.18*.

- SAS has also provided drivers for the VT300 terminal series, VAXstations, Ultrix UIS graphics workstations, and Tektronix 4200 series terminals. Additional drivers are available. For details, see *SAS Technical Report P-178, Additional SAS/GRAPH Hardware Interfaces, Release 5.18* and *SAS Technical Report P-182, Changes and Enhancements to the SAS System, Release 5.18, under VMS*.
- New SAS/Graph map datasets.
- Micro-to-Host enhancements. You can transfer Version 5 catalogs to a personal computer with SAS/PC Version 6.03.
- Numeric keypad enhancements. You can now switch your terminal's keypad between application and numeric function modes while in the SAS display manager.
- Access to sequential and non-sequential formatted SAS datasets via DECnet. Under Release 5.18, you can create and read SAS datasets on any VMS node connected to your DECnet network. You can set up access to the target DECnet node from your SAS program with the LIBNAME statement. See Chapter 13 in *SAS Technical Report P-182, Changes and Enhancements to the SAS System, Release 5.18, under VMS*.

For a complete list of the new features and enhancements of SAS Release 5.18, refer to *SAS Technical Report P-182, Changes and Enhancements to the SAS System, Release 5.18, under VMS*. You can also obtain SAS Release 5.18 information by entering the DCL command:

```
$ TYPE/PAGE SYS$HELP:SAS518.RELEASE_NOTES
```

Version 5.18 also incorporates several changes from Version 5.16. We suggest that SAS users read a description of these changes in the release notes before using the new version. SAS Release 5.18 is available for testing through the SETUP function by entering the DCL command:

```
$ SETUP SAS /V=SAS518
```

Direct questions and comments to Mike Thommes at extension 2-5461 or via electronic mail at ANLVM::B14908. CTD will order SAS technical reports for users on request.

NEW TEX TOOLS ON THE VAX 8700

Recently, CTD received a new collection of TeX-based tools (maintained primarily by their authors) that are public domain offerings. TeX is a

typesetting language developed by Donald E. Knuth of Stanford University to create technical documents containing complex mathematical equations. Figure 2² is an example of text³ produced by the TeX program.

In order to derive the graphical Ward identities, we concentrate on L_f . In general, the terms in the Lagrangian consist of products of fermion bilinears and gauge field link variables U (which are defined in (2.17)). We expand the link variables in L_f in a power series in the coupling e and introduce the Fourier transforms of the gauge field A_μ and the fermion field ψ :

$$\psi(x) = \int_{-\pi/a}^{\pi/a} \frac{d^d k}{(2\pi)^d} e^{ik \cdot x} \psi(k),$$

$$A_\mu(x) = \int_{-\pi/a}^{\pi/a} \frac{d^d l}{(2\pi)^d} e^{il \cdot [x + (a/2)\hat{\mu}]} A_\mu(l).$$

Figure 2: Example of Text and Equations Produced by TeX

The new TeX tools include:

- Language Sensitive Editor (LSE) TeX/LaTeX templates. LSE can assist by supplying standard TeX language constructs at a keystroke and by allowing the user to add or change only necessary text.
- DVI2PS, another version of a TeX output-to-PostScript device postprocessor.
- Several interactive TeX previewers are available for the VAXstation, ReGIS (a graphics instruction set from DEC) terminals (VT125, VT241, and VT330), and other terminals.
- SPELL, a TeX/LaTeX spell checker.

This collection contains many other selections not listed above. For a more complete list, see the README.1ST file described below.

If you are a TeX user, we encourage you to review these new tools. The new TeX tools are available when you execute the following **SETUP** command on ANLCV1:

```
$ SETUP TEX /V=TEST
```

² The example in Figure 2 is from Geoffrey T. Bodwin (High Energy Physics), *The Equivalence of Dirac-Kähler and Staggered Lattice Fermions in Two Dimensions* (ANL-HEP-PR-87-112), pp. 19-20.

³ We prepared the text for this article by using Waterloo Script and creating the PostScript output file. TeX and DVIALW created a PostScript file for Figure 2 that was merged with the PostScript file for the text.

To access the tools within the collection, **SETUP** the test version and enter the DCL command:

```
$ TYPE/PAGE TEX_ROOT:[EXE]README.1ST
```

This file contains the specifications of the various tool files and lists the documents describing how to use several of these tools. If you would like to learn more about the TeX tools, call the User Services consultant at extension 2-5405 or send VMS mail to ANLCV1::CONSULT.

If you find any of these tools useful and would like them made available on a permanent basis on the VAX 8700, contact Barry Miller at extension 2-6808. CTD plans to remove these TeX tools at the end of February 1989.

VAX CODE MANAGEMENT SYSTEM 3.0 TO BE INSTALLED

CTD has received Version 3.0 of the Digital Equipment Corporation's (DEC's) Code Management System (CMS). VAX/DEC CMS maintains large systems of online code by storing routines in a library. CMS systematically keeps track of user modifications to the code and records all user access. CMS is a powerful software development tool that (1) maintains multiple generations or versions of application code, (2) protects code against concurrent update when access is necessary by multiple parties, and (3) provides development security and audit trails. CMS Version 3.0 implements a new library file format that significantly improves CMS performance, especially on large CMS libraries. Version 3.0 also contains several new commands and command qualifiers. For more information, enter:

```
$ TYPE/PAGE SYS$HELP:CMS030.RELEASE_NOTES
```

You will have to convert all pre-Version 3.0 CMS libraries to the new format. To ensure that you will have no difficulties converting your existing CMS libraries, use the CMS **VERIFY** command now to verify your CMS libraries before CTD installs Version 3.0. The **VERIFY** command will report any CMS library structural difficulties detected and, optionally, will attempt to repair them. CTD plans to install CMS Version 3.0 on Wednesday, March 1, 1989. On or after March 1, 1989, use the CMS **CONVERT LIBRARY** command that DEC has provided.

For information on the CMS **CONVERT LIBRARY** and **VERIFY** commands, see *Guide to VAX DEC/Code Management System* (AI-KL03A-TE), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). If you have any comments or questions, call the User Services consultant at extension 2-5405 or send VMS mail to ANLCV1::CONSULT.

BITS & BYTES

ERRATUM: PUBLISHED RATES FOR MVS CLASS Y SERVICE

The bulletin of October 3, 1988, announcing revised rates and job scheduling for FY1989, stated that the job scheduling for the IBM MVS batch processor would remain unchanged. However, page 4 of *Computing and Telecommunications Division Rates* that accompanied the October 1988 *Newsletter* erroneously stated that MVS Class Y batch jobs were eligible to run overnight or week-ends. The section on MVS Class Y batch jobs should read:

Class Y Deferred Weekend Batch. Class Y provides lower charges than Class X; batch jobs in this class will normally run only on weekends, when the jobs will have negligible impact on other jobs. We make no estimates or guarantees about when they will run.

CTD will reevaluate MVS scheduling after the replacement of the IBM 3033 computers. We regret any confusion that this error may have caused.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

Using the Hydra Protocol Converter for IBM Full Screen Terminal Emulation at ANL (ANL/TM 457, Revision 1) explains how to take advantage of IBM full screen convenience features with the more popular terminals and terminal emulation programs by using the Hydra Protocol Converter (extension 2-3270). Hydra full screen emulation is available for all the central IBM computer interactive services (CMS, MVS Wylbur, CICS, and MVS TSO). (Many terminals and terminal emulation programs emulate DEC VT100 or Televideo 950 terminals, which are documented in Chapters 2 and 3, respectively.) This revision reflects vendor improvements to the Hydra Protocol Converter hardware and changes in vendor-supplied terminal emulations. Revisions in the Hydra terminal selection menu required changes in the RELAY Gold scripts described in Chapter 4, "Using RELAY Gold on the IBM PC for Full Screen Emulation." Chapter 5, "Using MS-Kermit on the IBM PC for Full Screen Emulation," covers the new MS-Kermit Version 2.31, which requires new key mapping files and minor changes to emulation key assignments. A revised Chapter 6, "Using MacKermit on the Macintosh for Full Screen Emulation," includes revisions for the new 0.9(40) Kermit version. This revision supersedes the November 1987 printing.

A January 1989 addendum to *Recommended Documentation for Computer Users at ANL* (ANL/TM 379, Revision 1) updates the lists of documents in Chapters 3 and 4. The addendum lists (1) new or revised documents we have added at the Document Distribution Counter, (2) documents we no longer recommend, and (3) abstracts for added documents.

Cray Research, Inc. Documents

The *UNICOS CFT77 Reference Card* (SQ-0138 A) describes the features of the Fortran 77 compiler. This *Reference Card* lists the format of the CFT command, compiler options and functions, Fortran language statement syntax, intrinsic functions, and available compiler directives. This revised document supersedes the previous printing (SQ-0138).

The *UNICOS vi Reference Card* (SQ-2054) summarizes commonly-used **vi** commands in a pocket-size reference card.

IBM Documents

The *IBM VM/SP: SP Editor Command and Macro Reference* (SC24-5221-05) contains all of the command formats, syntax rules, and operand and option descriptions for the **XEDIT** command and Xedit subcommands and macros. This publication is a reference manual; for tutorial information on using the editor, refer to the *IBM VM/SP: SP Editor User's Guide*, which also contains information on using the System Product Interpreter. You should be familiar with the *SP Editor User's Guide* before you attempt to use this reference manual. The *IBM VM/SP: SP Editor Command and Macro Reference* includes Xedit enhancements to shared file systems and supersedes *IBM VM/SP: SP Editor Command and Macro Reference* (SC24-5221-04).

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING

Because of the holiday recess, there was no Computer Users Group meeting in January 1989.

MINUTES OF MACINTOSH USERS GROUP MEETING HELD JANUARY 11, 1989

Bob Kampwirth (Materials Science) opened the meeting at 11:03 a.m.

Chip Schnarel (Tektronix) described and demonstrated the new beta-release Tektronix co-processor board for the Apple Macintosh II. This board used the new beta-release Motorola 88100 chip. He emphasized that to call this board an accelerator card is misleading. It functions as a co-processor handling calculation-intensive routines by using the more efficient Reduced Instruction Set Compiler (RISC) technology built into the 88100 chip, thereby freeing the Apple Macintosh II 68020 main processor to handle I/O. Because of this RISC technology, it can do calculations 10 to 30 times faster than the Apple Macintosh II. Chip demonstrated this ability by running a Mandelbrot algorithm on a split screen: one by using the 68020 chip in the Apple Macintosh II and one by using the 88100 chip in the Tektronix co-processor board. Tektronix has designed this new co-processor board to use both the 68020 and the

88100 chips; each chip does the things that it does best.

Tektronix is working with software companies that are developing Fortran and C compilers for this RISC technology. These compilers should be released when Tektronix releases its co-processor board. The product release date should be in about three months. Chip Schnarel demonstrated one of these compilers running on the 88100 chip in the Tektronix co-processor board with a debugger for the program running on the 68020 chip in the Apple Macintosh II. The debugger is stable and continues to run even if the program crashes. A normal Apple Macintosh application (such as Excel) does not take advantage of the 88100 chip in the Tektronix co-processor board as its code was compiled for the 68020 chip in the Apple Macintosh II. With eight megabytes of random-access memory (RAM), the new Tektronix co-processor board costs \$15,000.

Bill Sterner (University of Chicago) demonstrated the ViewFrame II+2 projector display for viewgraph projectors. The image projected on the screen looked as sharp and clear as it does on the Apple Macintosh screen. The screen is not amber but has a gray scale display. The unit just plugs into the video output of the Apple Macintosh II or MS-DOS computers. You can also use ViewFrame II+2 with the Apple Macintosh SE computer if you add a special board. Bill expects that ViewFrame II+2 will be available from the University of Chicago Microcomputer Distribution Center at a discount within a few months.

Lee Wagar (Graphic Arts) reported that they are shifting to Apple Macintosh-based systems for page layout and presentation visuals. They have been using page layout software for several months. For presentation visuals, they have recently purchased a Quality Micro Systems (QMS) color PostScript printer for viewgraphs and two slide-making machines (Montage and Matrix), each with their own special capabilities. They have a Hewlett-Packard 300 dots-per-inch (dpi) scanner and are planning to get an 11-by-17 inch format laser printer. These devices will be available for a service charge to Laboratory personnel by bringing to Graphic Arts an Apple Macintosh disk with the information to be printed.

System 6.02 for the Apple Macintosh is available at the Document Distribution Counter (Building 221, Room A-134). Argonne has a site-wide license for system upgrades. Other Apple Macin-

tosh disks that you can check out are 45 HyperCard disks and 50 standard disks. These other disks are public domain software.

The Programmers Special Interest Group normally meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. Call John Mattson (Materials Science) at extension 2-5535 for details.

The Excel Special Interest Group normally meets the fourth Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Call Ralph Leonard (Chemical Technology) at extension 2-3229 for details.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:35 p.m.

Ralph Leonard, Macintosh Users Group Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD JANUARY 13, 1989

Chairperson Bryan Schmidt (Energy and Environmental Systems) opened the meeting at 12:15 p.m. Future meetings will be held on the second Thursday of the month.

Joe Paulini (Graphic Arts) provided the preliminary results of a survey that Graphic Arts sent to some of its customers. Of the ten users who replied, 90 percent have received their work on time, 92 percent have been satisfied with the quality, 69 percent have found the cost to be no more than expected, 100 percent have found it reasonably convenient to use Graphic Arts's services, and 100 percent feel they have been treated properly.

Also, Graphic Arts has received 65 percent of the copier surveys, mostly from key operators. Forty-six of the respondents rated the machines as good, 18 rated them as fair, and 5 think they are poor. Few general patterns could be discerned. The opinions of the attributes (such as copy quality and ease of operation) differed greatly, perhaps

because they were often based on a comparison with the particular machine that the respoondee had used previously. The major difficulties had been with the Konica 7090 models. The number of complaints has dropped dramatically since they were replaced. Most difficulties reported now occur on the large machines that have many different users. Joe would still appreciate hearing from anyone who has difficulties; call him at extension 2-8162. He mentioned that the Laboratory has saved \$50,000 to \$55,000 by using the new copiers. The Laboratory expects to save about \$200,000 by the end of the year and \$1 million over the three-year contract period, if the copier use continues to increase.

When asked why Konica was chosen, Joe stated that Konica submitted the most responsive bid. In an exhaustive, objective comparison of all submissions, Konica's proposal was found to best meet the Laboratory's needs. In answer to some people who complained that they had not been told that the new copiers were coming, he stated that he sent notices and spoke to many people in the Laboratory, but that this information did not always get passed on to everyone in a division or group.

The proofreader in Graphic Arts is retiring, and Graphic Arts is determining whether to hire a full-time editor/proofreader to replace her. Call Joe Paulini (extension 2-8162) or contact Lee Wagar (electronic mail address B20429 at ANLVM) as soon as possible if you now need or think you might need the services of an editor. Joe would also like to hear from any editor who is now doing extra work or turning it away. Also, Graphic Arts has posted a job opening for a computer production artist and plans to hire a senior industrial photographer soon.

Lee Wagar reported that no new equipment has arrived in Graphic Arts; requests are still being processed in Purchasing. Graphic Arts is looking at laser printers that can print black-and-white on 11-by-17 inch paper, but has not made any decisions.

The next Graphic Arts Users Group meeting will be held on Thursday, February 9, 1989, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary

WORKLOAD STATISTICS (NOVEMBER 30 THROUGH DECEMBER 20, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,313	1,313	479
Wylbur	1,616	1,598	441
MVS TSO	54	54	6
CICS	1,616	1,598	1
MVS Batch	2,011	1,991	672
VAX/VMS	380	387	168
Cray	301	310	93
All Systems	2,011	1,991	930

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	9,649	1,642	1,084	12,375	24,361.5	66.51
Wylbur	7,122	296	328	7,746	6,891.2	7.46
MVS TSO	13	0	1	14	15.3	0.00
CICS	17	0	0	17	0.0	0.74
VAX/VMS	4,141	300	286	4,727	6,650.1	99.62
Cray	51	2	4	57	489.4	0.02
IBM BATCH						
Class U	7,775	1,441	874	10,090	n.a.	24.00
Class W	15,103	1,250	812	17,165	n.a.	157.77
Class X	10	908	40	958	n.a.	95.02
Class Y	0	9	461	470	n.a.	80.28
Class Z	0	0	2	2	n.a.	0.00
Nonmain	9,620	974	608	11,202	n.a.	0.00
Total	32,508	4,582	2,797	39,887	n.a.	357.07
CRAY BATCH						
u	51	2	4	57	n.a.	0.02
w	1,391	54	47	1,492	n.a.	10.23
x	514	65	23	602	n.a.	12.00
y	2,003	170	426	2,599	n.a.	58.74
Total	3,959	291	500	4,750	n.a.	80.99
VMS BATCH						
W BATCH	216	134	53	403	n.a.	9.20
X BATCH	7	27	0	34	n.a.	53.82
Y BATCH	1	2	2	5	n.a.	1.57
Total	224	163	55	442	n.a.	64.59

INPUT/OUTPUT

Lines Printed	44,039,601
Local	36,173,144
Remote	23,722,228
Fiche	24,463
Cards Punched-Local Only	6,556
Tape Mounts	3,317
Microfiche Developed	530,312
Microfiche Frames Developed	

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	44	n.a.
Matrix 35mm Color	100	691
Matrix-8 x 10	7	8
Matrix-Negative	12	23
FR80 Film Plots		
35mm Black/White/Unsprocketed	41	371
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	4	3,417
16mm Color	1	9

DATA MANAGEMENT

Tapes Stored	23,123
New Tapes Saved	760
Tapes Released	723
Datasets Exported to Tape	1,351
Datasets Imported from Tape	462

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (NOVEMBER 30 THROUGH DECEMBER 20, 1988)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	13		9			2	2
Hrs Unavailable	12.35		9.08			0.56	2.70
MTF/Unscheduled	122.91					245.82	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12		9			2	1
Hrs Unavailable	10.15		9.08			0.56	0.50
MTF/Unscheduled	56.61					84.92	
RED IBM 3033							
All Shifts							
Interruptions	8	3	3				2
Hrs Unavailable	12.00	4.50	2.51				4.98
MTF/Unscheduled	246.00						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6	2	3				1
Hrs Unavailable	7.30	2.00	2.51				2.78
MTF/Unscheduled	172.70						

AVAILABILITY STATISTICS, BY SERVICE (NOVEMBER 30 THROUGH DECEMBER 20, 1988)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	9	3	4				2
Hrs Unavailable	13.08	4.50	3.60				4.98
MTF/Unscheduled	245.45						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7	2	4				1
Hrs Unavailable	8.38	2.00	3.60				2.78
MTF/Unscheduled	171.61						
NYLBR							
All Shifts							
Interruptions	14		8			3	3
Hrs Unavailable	13.81		8.31			1.98	3.51
MTF/Unscheduled	81.69					163.39	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13		8			3	2
Hrs Unavailable	11.53		8.31			1.98	1.23
MTF/Unscheduled	33.69					56.15	
MVS TSO							
All Shifts							
Interruptions	13		8			3	2
Hrs Unavailable	12.83		8.40			1.60	2.83
MTF/Unscheduled	98.23					163.72	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12		8			3	1
Hrs Unavailable	10.55		8.40			1.60	0.55
MTF/Unscheduled	42.36					56.48	
JES3							
All Shifts							
Interruptions	15		8			5	2
Hrs Unavailable	15.93		12.11			1.11	2.70
MTF/Unscheduled	69.72					97.61	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14		8			5	1
Hrs Unavailable	13.73		12.11			1.11	0.50
MTF/Unscheduled	27.71					33.25	
CICS							
All Shifts							
Interruptions	2					2	
Hrs Unavailable	1.85					1.85	
MTF/Unscheduled	251.07					251.07	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2					2	
Hrs Unavailable	1.85					1.85	
MTF/Unscheduled	89.07					89.07	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	3			1	1		1
Hrs Unavailable	1.06			0.23	0.41		0.41
MTF/Unscheduled	251.46				502.93		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2				1		1
Hrs Unavailable	0.83				0.41		0.41
MTF/Unscheduled	89.58				179.16		
CRAY							
All Shifts							
Interruptions	12	6	3		1	2	
Hrs Unavailable	20.23	12.51	1.46		4.66	1.58	
MTF/Unscheduled	161.25				483.76	241.88	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5		3		1	1	
Hrs Unavailable	7.55		1.46		4.66	1.41	
MTF/Unscheduled	86.22				172.45	172.45	

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (NOVEMBER 30 THROUGH DECEMBER 20, 1988)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	Advanced Photon Source Div	0.9	0.2	0.0	-0.4	0.7
272	Advanced Photon Source	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		0.9	0.2	0.0	-0.4	0.7
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	Bio, Envir, & Med Res Div	2.2	0.8	0.3	2.7	6.0
149	BEM Div-Ctr for Envir Res	1.9	0.2	0.0	1.3	3.4
174	Ener/Env/Bio Res Prog Dir	0.2	0.0	0.0	0.1	0.2
190	Energy & Envir Syst Div	29.4	11.6	0.2	10.0	51.1
197	Off of Inter Energy Dev Progs	0.6	0.0	0.0	0.1	0.7
246	TIS - Natl Energy Software Ctr	0.2	0.0	0.0	1.1	1.3
274	Ener/Env/Bio Res Prog Adm	0.1	0.0	0.0	0.1	0.2
		---	---	---	---	---
SUBTOTAL		34.4	12.6	0.5	15.4	62.9
ENGINEERING RESEARCH						
102	EBR-II Project-ANL West	1.4	0.1	1.3	0.4	3.2
104	EBR-II Project-Illinois	3.7	0.0	0.0	1.9	5.6
107	Chemical Technology Division	1.6	0.0	0.0	1.1	2.8
112	Reactor Anal & Safety	12.6	0.3	2.6	6.5	21.9
114	Matls & Comp Tech Div	9.4	1.4	0.2	5.4	16.4
115	Engineering Div - Ill	24.0	0.1	0.1	1.0	25.2
116	Applied Physics-Illinois	3.5	0.0	2.2	0.2	6.0
117	Applied Physics-ANL West	2.7	0.0	0.1	0.2	3.0
118	Reactor Exp & Exam Div	0.0	0.0	0.0	0.0	0.0
119	Analytical Laboratory ANL-West	0.0	0.0	0.0	0.1	0.1
171	Engrg Res Prog Dir	0.0	0.0	0.0	0.1	0.1
178	Fusion Power Program	0.3	0.0	0.0	0.1	0.4
211	Eng Div-Design Eng Dept	0.0	0.0	0.0	2.7	2.7
269	Chem Tech Div-Analytical Chem	0.1	0.0	0.0	0.1	0.2
271	Engrg Res Prog Adm	0.2	0.0	0.0	0.3	0.5
		---	---	---	---	---
SUBTOTAL		60.6	2.9	20.8	28.2	112.5
EXTERNAL						
750	ACK Work Projects	0.2	0.0	0.0	0.4	0.6
751	ACK Work Projects-Dist	1.3	0.0	0.0	0.8	2.0
752		9.8	0.0	0.0	4.5	14.3
753		0.0	0.0	0.0	0.6	0.7
754		0.1	0.0	0.0	0.3	0.4
757		0.3	0.0	0.0	0.6	1.0
		---	---	---	---	---
SUBTOTAL		11.8	0.0	0.0	7.2	19.0
OPERATIONS						
143	Supp Serv Div - Elec Dept	0.1	0.0	0.0	0.7	0.9
148	Human Resources-Health Dept	0.6	0.0	0.0	0.2	0.9
150	Plant Fac & Serv - Spec Matls	0.1	0.0	0.0	0.1	0.2
161	Tech Info Services Dept	1.2	0.0	0.0	1.3	2.5
201	Office of the Director	0.2	0.0	0.0	0.4	0.6
202	Ofc of Chief Oper Ofcr	0.0	0.0	0.0	0.1	0.2
210	Supp Serv Div - Cent Shops	0.1	0.0	0.0	0.1	0.2
216	Support Services Division	0.3	0.0	0.0	0.1	0.4
222	Plant Fac & Serv-Lodging Fac	0.0	0.0	0.0	0.0	0.0
232	Plant Fac & Serv-Security	0.2	0.0	0.0	0.3	0.6
234	Supp Serv Div-OHS-Health Phy	0.1	0.0	0.0	0.1	0.2
235	Supp Serv Div-Env Safe Health	0.0	0.0	0.0	0.0	0.0
236	Plant Fac & Serv-Fire Dept	0.7	0.0	0.0	0.0	0.7
260	Supp Serv Div-Graphic Arts	0.2	0.0	0.0	1.2	1.4
275	Office of Public Affairs	0.7	0.0	0.0	0.1	0.8
276	Ofc Pub Af - Motn Pic Unit	0.0	0.0	0.0	0.0	0.0
296	Telecom Cost/Recovery	0.0	0.0	0.0	0.3	0.3
315	Supp Serv Div-Matls & Serv	1.7	0.0	0.0	0.5	2.3
316	Plant Fac & Serv-Veh Maint	0.0	0.0	0.0	0.1	0.1
317	Plant Fac & Serv-DriveRtg Ser	0.1	0.0	0.0	0.1	0.1
319	Supp Serv Div-Travel Ofc	0.0	0.0	0.0	0.0	0.0
322	Supp Serv Div-Procurement	0.0	0.0	0.0	0.0	0.0
333	QA, Envir & Safety Ofc	0.0	0.0	0.0	0.0	0.0
336	Supp Serv Div - Inspection	0.0	0.0	0.0	0.0	0.0
400	Ofc of Chief Fin Officer	9.6	0.0	0.0	5.7	15.3
401	Accounting	16.8	0.0	0.0	1.4	18.3
402	Ofc Chief Fin Ofcr-Data Entry	0.0	0.0	0.0	0.1	0.1
403	Budget Office	0.0	0.0	0.0	0.0	0.0
410	Human Resources Department	7.3	0.0	0.0	1.3	8.6
412	Affirm Action Program	0.1	0.0	0.0	0.2	0.2
501	Plant Fac & Serv-Bldg Maint	0.0	0.0	0.0	0.0	0.0
502	Plant Fac & Serv-Installation	0.0	0.0	0.0	0.0	0.0
503	Plant Fac & Serv-Grounds	0.0	0.0	0.0	0.0	0.0
504	Plant Fac & Serv-Custodial	0.0	0.0	0.0	0.0	0.0
505	Plant Fac & Serv-Waste Mgmt O	0.0	0.0	0.0	0.1	0.1
506	Plant Fac & Serv-Plant Mgr of	0.5	0.0	0.0	0.3	0.8
510	Plant Fac & Serv-Utility Syst	0.0	0.0	0.0	0.0	0.0
512	Plant Fac & Serv-Fac Plng/Eng	0.7	0.0	0.0	0.3	1.0
530	Site Mgrs Ofc-ANL West	0.1	0.0	0.0	0.0	0.1
531	Personnel-ANL West	0.0	0.0	0.0	0.0	0.0
532	Special Matls-ANL West	0.5	0.0	0.0	0.2	0.8
533	Accounting-ANL West	0.0	0.0	0.0	0.0	0.0
534	Purchasing-ANL West	0.0	0.0	0.0	0.0	0.0
535	Security - ANL West	0.0	0.0	0.0	0.0	0.0
536	Safety Staff-ANL West	0.1	0.0	0.0	0.0	0.2
537	Information Service-ANL West	0.0	0.0	0.0	0.0	0.0
538	Matls Handling-ANL West	0.1	0.0	0.0	0.0	0.1
550	Computer Appl & Serv - ANL-W	0.3	0.0	0.0	0.1	0.4
551	RAD Monitoring-ANL West	0.0	0.0	0.0	0.0	0.0
554	Machine Shop-ANL West	0.0	0.0	0.0	0.0	0.0
556	Site Engrg-ANL West	0.1	0.0	0.0	0.0	0.1
557	Plant Services-AW-Service Req	0.1	0.0	0.0	0.0	0.1
558	Plant Services-AW-Function	0.0	0.0	0.0	0.0	0.0
559	Food Services - ANL West	0.0	0.0	0.0	0.0	0.0
561	Ofc of Quality Assurance - AW	0.0	0.0	0.0	0.0	0.0
563	Talent Resource Pool-ANL West	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		43.0	0.0	0.0	16.7	59.8
PHYSICAL RESEARCH						
105	Materials Science Division	2.3	2.6	3.6	-1.8	6.7
109	Physics Div	2.0	0.1	0.3	1.4	3.9
120	Chemistry Div	1.2	3.7	11.3	1.1	17.2
136	Int Pulsed Neut Source Prog	0.1	0.0	0.0	0.5	0.6
137	High Energy Physics Div	0.8	0.5	0.7	1.0	3.1
139	Div of Educational Programs	0.2	0.0	2.9	6.3	9.3
145	Mathematics & Computer Sci Di	7.2	0.0	0.0	3.5	10.6
245	Computing & Telecommunications	1.5	0.0	0.0	1.1	2.6
247	CTD - Communications Services	0.1	0.0	0.0	0.1	0.1
273	Physical Research Program Adm	0.1	0.0	0.0	0.1	0.1
		---	---	---	---	---
SUBTOTAL		15.8	6.9	18.8	13.2	54.8
TOTAL		166.5	22.6	40.1	80.4	309.6

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

Argonne National Laboratory
Computing and Telecommunications Division
February 1989

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering two computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts of VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: February 9, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Instructor: Dave Lifka

USING VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.

Length of Class: One 3-hour session

Date and Time: February 14, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Instructor: Dave Lifka

COMPUTER-BASED TRAINING COURSES

CTD currently offers 49 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CICS Course

CICSPI	CICS Concepts and Facilities
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CMS Courses

CMS	Using CMS
REXXAP	REXX Application Programming
XEDIT	Using XEDIT

Cobol Course

COBOL2	VS COBOL II: Making the Transition
--------	------------------------------------

Office System Course

OFFICE	Office System Skills and Concepts
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PROFS Courses

PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
PGMJCL	JCL for Programmers
MVSUTL	Using IBM Utilities in Application Programming
SORTMRG	Using SORT/MERGE Utilities

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

CLSTPG	CLIST Programming
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

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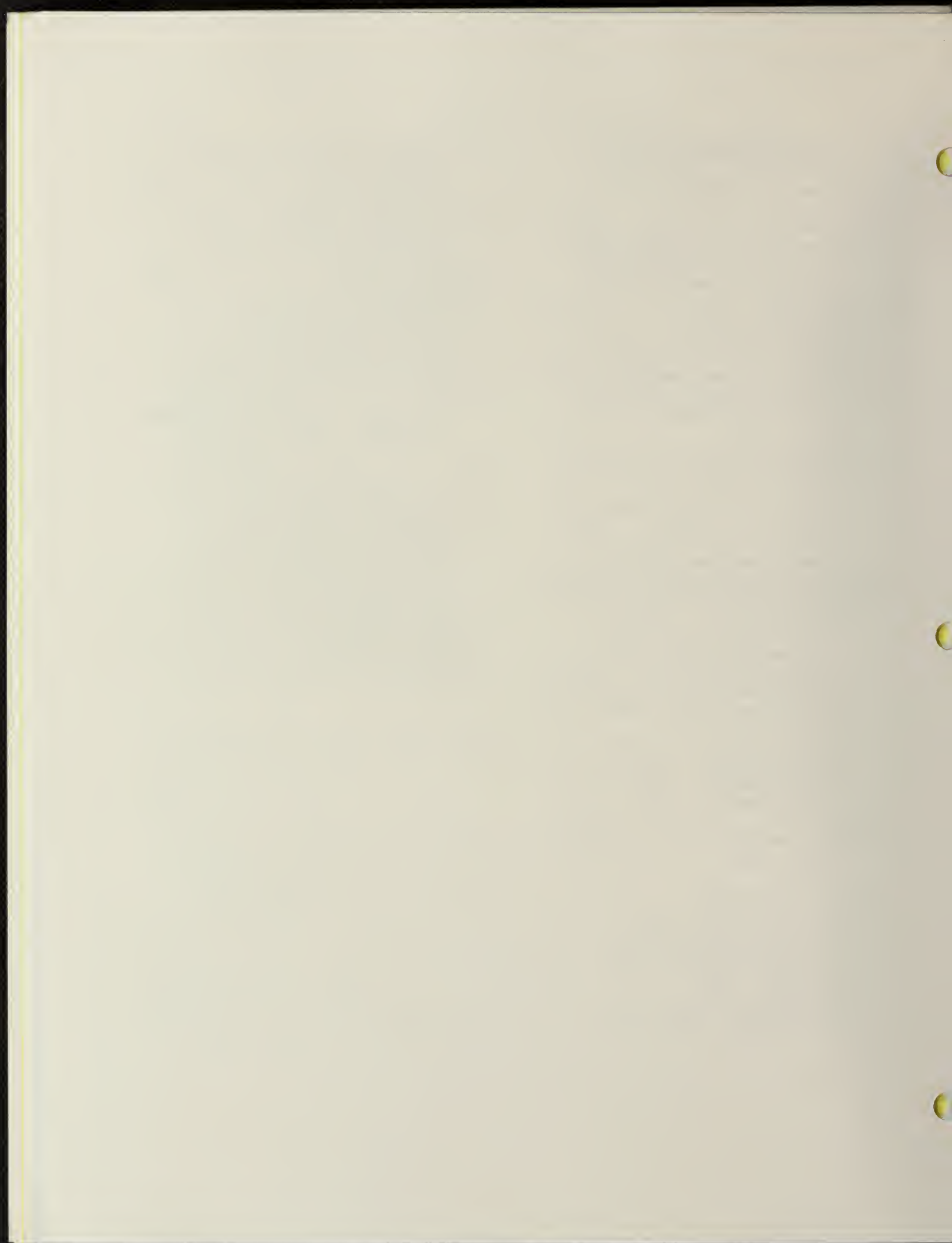
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ANL Procedure for Reporting Computer Security Incidents January 1989

Requirements

DOE Order 1360.2A describes significant computer security incidents and requires that they be documented and reported to DOE. This document defines the ANL procedures to be followed in reporting all unclassified computer security incidents. Table 1 classifies security incidents according to their severity, by using the description of significant from DOE Order 1360.2A, and defines the final reporting authority for each classification of incident.

Responsibility for Administering the ANL Computer Protection Policy

The primary responsibility for protecting Laboratory sensitive applications and the computers on which they run rests with those persons who operate the computers and who design, maintain, and use the applications. The Argonne Computer Protection Program Manager is responsible for administering a program to assure the adequacy of and compliance with standards for the protection of unclassified computer systems and applications at Argonne National Laboratory. The Director or Manager of every division, department, or program within ANL appoints a Computer Protection Program Representative who is responsible for ensuring protection policy compliance for the sensitive and critical applications and computers belonging to that division, department, or program. Assistant Computer Protection Program Managers are appointed by division directors and program or department managers for every computer system whose capacity and value require it to be reported in the *ANL Information Technology Resources Long Range Plan*. These Assistants are responsible for the security of those computers and the data and applications residing on them.

Initial Reporting of Incidents

A person who believes a computer security incident has occurred on one of the Laboratory's central computers operated by the Computing and Telecommunications Division should report the incident directly to the Laboratory's Computer Protection Program Manager, who will verify and determine the severity of the incident and will follow these documentation, investigation, and report-

ing procedures. The Computer Protection Program Manager must report all security incidents involving an ANL employee to the director or manager of the ANL program, department, or division for whom the employee works.

A person who believes a computer security incident involving a distributed divisional computer or workstation has occurred should immediately report the incident to the Assistant Computer Protection Program Manager responsible for the computer on which the incident occurred or to the Computer Protection Program Representative for the ANL organization involved. The Assistant or Representative will report all incidents to the responsible line manager. The Assistant or the Representative shall make a preliminary determination of the severity of the incident and shall immediately report incidents of severity level 2 or higher to the Computer Protection Program Manager. The Computer Protection Program Manager will make the final determination of the sensitivity of incidents of severity level 2 or higher and will follow these documentation, investigation, and reporting procedures.

Subsequent Reporting

The ANL Computer Protection Program Manager will promptly report incidents of level 2 and higher to the Chief Operations Officer; and they, together with the Manager of the ANL Security Department, will make the final determination of the severity of those incidents and determine what type of future action (e.g., legal counsel, law enforcement) is required. Severity level 3 incidents are significant, as described in "DOE Order 1360.2A," and will be reported by the Computer Protection Program Manager to DOE by using the reporting procedures outlined in the DOE "Computer Security Incident Reporting Procedures."

Investigation and Documentation of Incidents

The responsible Assistant Computer Protection Program Manager or the Computer Protection Program Representative will investigate level 2 or 3 incidents occurring in the Assistant's or Representative's jurisdiction under the direction of the Computer Protection Program Manager. The Assistant or Representative will prepare a preliminary report

to be delivered to the ANL Computer Protection Program Manager within two working days of the incident. When the investigation is complete, the Assistant or Representative will send a final report to the ANL Computer Protection Program Manager to keep as a part of the Laboratory computer protection records.

The ANL Computer Protection Program Manager will investigate incidents occurring on the central computers or applications that are processed on the central computers, and will keep on file the final reports of all computer security incidents of severity level 2 and higher for a period of at least three years.

Alternate Reporting Points

In cases where the Assistant Computer Protection Program Manager or the Computer Protection Program Representative cannot be located, the person reporting the incident will contact the ANL Computer Protection Program Manager directly.

In cases where the ANL Computer Protection Program Manager cannot be located, the Associate Director for Operations in the Computing and Telecommunications Division shall be notified.

In cases where neither the ANL Computer Protection Program Manager nor the Associate Director for Operations in the Computing and Telecommunications Division can be located, the Director of the Computing and Telecommunications Division shall be notified.

Appropriate Personnel and Their ANL Telephone Numbers

ANL Computer Protection Program Manager (L. Jean Troyer)	2-7440
CTD Associate Director for Operations (L. Michael Boxberger)	2-5638
Director of Computing and Telecommunications (David Weber)	2-7155
ANL Chief Operations Officer (E. Gale Pewitt)	2-5569

Table 1

Level	Type of Incident and Reporting Authority
1. Minor	<p>Unauthorized sharing of user verification passwords; attempts to access a system with little chance of success; inadvertent access to sensitive information; minor abuse of a system by authorized users (e.g., games and recreation). Must be reported to the Assistant Computer Protection Program Manager for the system and to the Director or Manager of the ANL program, department, or division.</p> <p>Incidents on the Laboratory's central computers must be reported to the Computer Protection Program Manager.</p>
2. Important	<p>Major misuse or abuse of a system by an authorized user (e.g., using the system to support a personal business); penetration of system by unauthorized, non-ANL persons; deliberate access to or distribution of sensitive information; concentrated attempts to gain access to an ANL Computer System. Must be reported to the Computer Protection Program Manager and to the ANL Chief Operations Officer.</p>
3. Significant	<p>Deliberate destruction or unauthorized modification of sensitive or mission-critical data, or any incident that may result in loss, harm, or embarrassment to DOE; criminal actions which may be prosecuted in the courts; incidents whose reporting could benefit other DOE installations susceptible to the same threats (e.g., security holes in major operating systems). Must be reported to DOE according to DOE-CH requirements.</p>

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 20

NUMBER 3

MARCH 1989

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- Computer-Based Training Courses

CLASSIFIED
MAR 30 1989
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	B143	2-4827	B15013 AT ANLVM
Management Information Systems	Diane Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 4.7, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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COMPUTING COMMENTS

REORGANIZATION OF THE COMPUTING AND TELECOMMUNICATIONS DIVISION

On July 11, 1988, Dr. Alan Schriesheim established the Computing and Telecommunications Division (CTD) with Dr. David Weber as the Director, reporting to Dr. Frank Y. Fradin (Associate Laboratory Director for Physical Research). See "We're Now the Computing and Telecommunications Division!" in the August 1988 *Newsletter*. The motivation for this change was to improve the Laboratory's computing and telecommunications infrastructure for scientific and administrative users and the Laboratory's chances for securing major new initiatives, including the Center for Energy Research Computation (CERC). Therefore, Dr. Weber has established three divisional branches: Scientific Applications and Research, Computing and Telecommunications Operations, and Management Information Systems.

Dr. Charles Mueller (formerly with the Reactor Analysis and Safety Division) leads Scientific Applications and Research (SAR). SAR develops programmatic opportunities to enhance the Laboratory's capabilities and recognition in state-of-the-art computing and telecommunications and to position the Laboratory at the forefront of scientific computing. SAR promotes participation in joint programs with other scientific and engineering divisions, as well as developing programs in collaboration with external organizations. These programs stress algorithm and software development to enhance the capability of state-of-the-art research and production codes by more fully exploiting today's advanced vector and parallel architectures.

Mike Boxberger (formerly the Associate Manager for Computing Services) leads Computing and Telecommunications Operations. This branch manages and operates the Laboratory's central computers and the data and voice telecommunications systems; installs and maintains the system software; and provides documentation, courses, and consulting advice on the systems.

Diane O'Brien Hale (formerly in charge of the Information Systems Section in Computing Services) leads Management Information Systems (MIS). MIS is organized into Information and Production Services and three systems groups: Financial, Human Resources, and Materials and Plant.

The newly formed Information and Production Services is responsible for assisting users in accessing administrative information as well as managing Production Control and Hewlett-Packard Operations in Building 201. Diane coordinates all activities about Management Information Systems (including operations, networking, administrative user assistance, software applications development and maintenance, and business planning).

HIGH-PERFORMANCE COMPUTING SEMINARS

The series of high-performance computing seminars is continuing. Upcoming talks for the months of March, April, and May are:

Per Christian Hansen, Technical University of
Denmark

Solution of Discrete Regularization by Means of Truncated SVD

Tuesday, March 14, 1989

Mark Davoren, University of Edinburgh
To Be Announced

Wednesday, March 22, 1989

Eric van de Velde, California Institute of
Technology

Multicomputer Matrix Computation: Theory and Practice

Thursday, March 30, 1989

Zahari Zlatev, University of Illinois at Urbana
**Vectorizing and Parallelizing Sparse Codes
for the Alliant**

Thursday, April 13, 1989

Pierre Leca, ONERA, Chatillon, France
To Be Announced

Tuesday, April 25, 1989

George Cybenko, University of Illinois at Urbana
To Be Announced

Thursday, May 11, 1989

Alan Norton, IBM T. J. Watson Research Center
To Be Announced

Thursday, May 18, 1989

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415. The seminar chairman is Jack Dongarra.

CMS NEWS

PL/I OPTIMIZING COMPILER VERSION 1 RELEASE 5.1 GOES PRODUCTION IN CMS

On Monday, March 27, 1989, Version 1 Release 5.1 of the PL/I Optimizing Compiler will replace Version 1 Release 4.0 as Argonne's production version in CMS. Release 5.1 has been available for testing since May 1988. This new release fixes many bugs.

To test Release 5.1 before March 27, 1989, enter (in CMS):

```
CP LINK PLIOPT 2 vaddr
ACCESS vaddr x
```

where "vaddr" is any unassigned virtual address and "x" is any unassigned filemode letter.

GRAPHICS NEWS

CUECHART 2.1 GOES PRODUCTION IN CMS

On Tuesday, March 14, 1989, CTD will upgrade Cuechart 2.1 to production status in CMS. Cuechart has been available for testing since May 1988. Because of the way Cuechart is installed in CMS, this version is primarily a maintenance release. Note that the locally developed terminal and plotter drivers (those drivers with the "ANL" prefix) will no longer be available. For specifics on Cuechart 2.1, see "Tellagraf 6.1 Available for User Testing in CMS" in the May 1988 *Newsletter*.

TELLAGRAF 6.1 GOES PRODUCTION IN CMS

On Tuesday, March 14, 1989, CTD will upgrade Tellagraf 6.1 to production status in CMS. Tellagraf has been available for testing since May 1988. This version of Tellagraf is primarily a maintenance release. However, several new output devices are available, including the ability to create a binary CGM (Computer Graphics Metafile) metafile. The binary CGM metafile format is both an American National Standards Institute (ANSI) and International Standards Organization (ISO)

standard and can be used as input to many popular personal computer graphics programs (for example, SuperImage, FreeLance Plus, and Harvard Presentation Graphics) for enhancement. Note that the locally developed terminal and plotter drivers (those drivers with the "ANL" prefix) will no longer be available. For specifics on Tellagraf 6.1, see "Tellagraf 6.1 Available for User Testing in CMS" in the May 1988 *Newsletter* and "CGM Graphics Capabilities Available for Testing in CMS and MVS" in the August 1988 *Newsletter*.

DISSPLA 10.5 GOES PRODUCTION IN CMS AND MVS

On Tuesday, March 14, 1989, CTD will upgrade Disspla 10.5 to production status in CMS and MVS. Disspla has been available for testing since May 1988. This version of Disspla contains several enhancements and fixes for reported bugs. It also allows the creation of CGM (Computer Graphics Metafiles) metafiles as output. The CGM metafile is both an American National Standards Institute (ANSI) and International Standards Organization (ISO) standard and can be used as input to many popular personal computer graphics programs (for example, SuperImage, FreeLance Plus, and Harvard Presentation Graphics) for enhancement. For specifics on Disspla 10.5, see "Disspla 10.5 Now Available for Testing in CMS" in the May 1988 *Newsletter*, "Disspla 10.5 Now Available for Testing in MVS" in the July 1988 *Newsletter*, and "CGM Graphics Capabilities Available for Testing in CMS and MVS" in the August 1988 *Newsletter*.

U105BW GRAPHICS SERVICE TO BE DISCONTINUED

CTD is terminating the maintenance contract for the U105BW graphics fiche service for the FR80 film processor. Years ago, CTD purchased the 105mm microfiche camera for the FR80 film processor and offered users a U105BW graphics fiche service. During the last few years, the use of this service has decreased significantly so that continuing the service as a general user service is not cost-effective. Users with special needs for U105BW service should contact the User Services consultant at extension 2-5405.

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM UPDATE

The Integrated Financial System (IFS) Project Team successfully completed the parallel test of the Laboratory's financial data for January 1989. This test included approximately 400,000 financial transactions. Preliminary reports indicate that one more month of testing should suffice prior to the production cutover in March 1989. The Project Team is in the process of fine tuning the standard reports and will notify the Financial Management System (FMS) users soon about class schedules.

Progress on all phases of the project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MIS INFORMATION AND PRODUCTION SERVICES AVAILABLE

With the reorganization of the Computing and Telecommunications Division (see "Reorganization of the Computing and Telecommunications Division in this *Newsletter*"), the Information and Production Services (IPS) Section has been formed within Management Information Systems (MIS) to provide a focal point for identifying business information needs and for assisting users in accessing the Laboratory's administrative information. IPS combines the former Production Control and Hewlett-Packard Operations in Building 201 with the services for Laboratory-wide systems, such as the Financial Management System (FMS) and the Human Resource System (HRS).

IPS schedules most of the administrative batch computing on the IBM computers, submits jobs, verifies the results, and manages the output. IPS also schedules and operates two Hewlett-Packard minicomputers in Building 201, on which run the Automated Materials/Payables System (AMPS), the Stock Tracker System (STS), and the Maintenance Control and Reporting System (MCRS). MIS users with schedule or operations questions should call extension 2-6924.

IPS assists users of administrative information who have questions about the location or meaning

of data available within the Laboratory-wide systems. Users who have questions about FMS or HRS should call extension 2-7252.

During the transition to the new Integrated Financial System, IPS will assist users of FMS by providing training in the new Information Expert (IE) reporting tool (see "Integrated Financial System Update" in this *Newsletter*). Following the replacement of the Laboratory's Human Resource System (HRS), scheduled for completion early in FY1990, IPS will enroll and train HRS users in using Information Expert for accessing both personnel and financial data.

NEW MATERIALS CATALOGS AVAILABLE IN CICS AND CMS

With the addition of Fisher Scientific for laboratory supplies and Baxter Chemicals for chemical supplies, a total of nine materials catalogs are available on the Laboratory's IBM mainframe computers. The nine catalogs include seven vendor catalogs, a catalog of items in Argonne East warehouses, and a catalog of items in Argonne West warehouses. Use the Materials CAtalog (MCAT) in CICS and the STORECAT exec in CMS to search or print the computerized stock catalogs. STORECAT offers character string searching with Xedit so that you can try to locate items based on the partial spelling of words in the description of the item. MCAT is still the preferred source for material information. The information in MCAT is more up-to-date, provides full screen display, and searches by noun and noun-adjective combinations.

Table 1 lists all the materials catalogs that you can use for ordering supplies from ANL stores or through the Argonne Materials Order System (AMOS). See "What's It All About, AMOS?" in this *Newsletter*. Table 1 also includes the catalog code you need to search or print specific catalogs, the vendor or warehouse location name, a description of the category of materials, whether the vendor has supplied a retail catalog complete with descriptions and pictures, a recent count of the number of stock items in the computerized catalog, and an estimate of the number of other (non-stock) items that you can order from the vendor. As stock runs out in the ANL warehouses, we will reduce the items listed in the Stores East and West catalogs and will increase the items listed in the vendors' catalogs.

To obtain a printout of the computerized catalogs in Table 1, use one of these methods:

1. Use MCAT in CICS and select one of the various print options.
2. Use STORECAT in CMS and select the print option.

3. Order catalogs at the Document Distribution Counter in Building 221, Room A-134.

4. Order catalogs through the mail by calling Information and Production Services at extension 2-6924.

To view a vendor's retail catalog, contact your division office.

Table 1: Vendor and Warehouse Catalogs

Catalog Code	Vendor or Location	Description	Vendor Retail Catalog	Number of Stock Items	Additional Items Available
A1	Publix Office Supplies, Inc.	Office Supplies	Yes	360	9,000+
B1	Joliet Valve	Plumbing Supplies	No	1,468	400+
C1	Gee Lumber	Lumber	No	57	80+
D1	Lion Photo	Film and Photographic Supplies	No	77	20+
E1	Englewood Electric	Electric Supplies	Yes	693	9,000+
F1	Fisher Scientific	Laboratory Supplies	Yes	508	33,000+
G1	Baxter Chemical	Chemicals	Yes	273	8,000+
SE	Stores East	ANL Warehouse	No		
SW	Stores West	ANL-Idaho Warehouse	No		

WHAT'S IT ALL ABOUT, AMOS?

It is not the title of a new song. AMOS is an acronym for the Argonne Materials Order System. AMOS is similar to a manufacturing company's "just in time" inventory control system. The suppliers who now have AMOS contracts guarantee a high percentage of deliveries of stock items to the Laboratory within 24 hours after receiving the Materials Requisition (MR). (Stock items are those items that were previously available from the Laboratory's warehouses.) In addition to timeliness, AMOS saves money. The Laboratory reduces its warehousing costs and lessens the risk of obsolescence by eliminating its inventory of many items. The Laboratory also benefits because the contracted vendors can discount their normal prices to Argonne as a result of the increased sales volume.

Since AMOS was announced in February 1987 for ordering office supplies from Publix Office Supply, six additional contracts have been awarded to other vendors (see Table 1 in "New Materials Catalogs Available in CICS and CMS" in this *Newsletter*). In addition to the stock items, vendors can often deliver many other items within a short time. Several of the vendors provide retail catalogs

of their merchandise, which various divisions have. In reviewing these catalogs, remember that the price shown is not the actual discounted price; also, some items may be excluded because the items are either prohibited or are still available from inventory.

To place an AMOS order, use one of the following methods:

1. Call the AMOS Order Entry clerk at extension 2-7523.
2. Mail a "Request for Stores Material" (ANL-32A) to AMOS Order Entry, SSD-MS, Building 4.
3. Use the STORES ORDER exec in CMS and follow the prompts.

With each of the above methods, furnish ordering information (for example, cost code, item number, quantity). Since some divisions have authorized only certain individuals to place AMOS orders, you may have to place your order through someone in your division office.

Once you place your order, AMOS will print an MR for the vendor. Most vendors have printers for printing the AMOS MR's at their warehouses so that they can often deliver your ordered items the next business day. In filling your order, the vendor must record on the packing list all the changes to your AMOS order that the vendor is authorized to make. For more information on AMOS, obtain a copy of the *Argonne Materials Order System (AMOS) Requestor's Guide*, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

PERSONAL COMPUTING

SAS/STAT 6.03 SOFTWARE UPGRADE AVAILABLE FOR IBM PERSONAL COMPUTERS

The SAS Institute has updated the SAS/Stat 6.03 software for personal computers. There are three new procedures: PROC CORRESP for performing simple and multiple correspondence analysis, PROC PRINQUAL for obtaining principal component analysis with nonlinear transformations, and PROC TRANSREQ for regression analysis with nonlinear transformations. Two Version 5 procedures, LIFETEST and PROBIT, are also in this update. These new procedures are documented in *SAS Technical Report P-179, Additional SAS/Stat Procedures, Release 6.03* (1-55544-318-4). CTD will order this and other SAS technical reports for users on request.

In addition to these new procedures, there are replacement modules for PROC GLM and PROC LIFEREG. These new modules contain important changes to the original versions of these procedures. To update your SAS/Stat 6.03 software, contact Mike Thommes at extension 2-5461 or via electronic mail at B14908 AT ANLVM.

TELECOMMUNICATIONS NEWS

LANMARK ETHERNET UPGRADE COMPLETE

On February 1, 1989, CTD successfully completed an upgrade to LANmark. LANmark is the local area network (LAN) component of the Laboratory's Private Branch Exchange (PBX) telephone system; it provides the Laboratory-wide Ethernet capability. LANmark has been operating at the Laboratory for over a year and a half and currently interconnects 28 Ethernet cable-based LANs and 14 single Ethernet devices. The upgrade provides increased throughput capabilities for LANmark.

The Ethernet standard (IEEE 802.3) allows packets of information to be as large as 1500 bytes. Previously, because the maximum size that LANmark could handle was 340 bytes, the LANmark controllers (LDIs) divided each Ethernet packet into as many as five LANmark packets. The upgrade allows LANmark to handle full-size Ethernet packets in a single LANmark packet, thus improving efficiency and increasing throughput. CTD has measured improvements in file transfer rates that range from 10 percent to 50 percent. The larger the Ethernet packet size used in the file transfer, the greater the improvement.

VAX/VMS NEWS

VAX/VMS DISK ACQUISITION

CTD has issued a purchase order for additional magnetic disk storage for the central VAX cluster. This action completes a competitive acquisition in which 12 vendors submitted proposals. Upon installation of the new disks, the VAX cluster storage capacity will increase from approximately 4.2 gigabytes to approximately 12.6 gigabytes.

CTD expects to dedicate about two-thirds of the storage increment for user needs, including permanent file space and space for temporary files. In addition, CTD plans to offer an arrangement so that interested users can obtain a guaranteed file space quota. The new storage will give CTD the flexibility to make a smoother upgrade to VMS 5.0 later.

CTD expects delivery of the new equipment in early March 1989; installation and availability will

follow soon after. We plan to manage the change to the new disks in such a way that users will not notice the difference, except for the increased availability of disk space.

SAS RELEASE 5.18 WITH POSTSCRIPT GOES PRODUCTION ON THE VAX 8700

On Tuesday, March 14, 1989, CTD will install SAS Release 5.18 on the VAX 8700 as the production (default) SAS system. The SAS Release 5.18 test version has been in use over a month with no reported difficulties.

A PostScript driver is one of the new SAS/Graph features (see "SAS Release 5.18 Installed As a Test Version on the VAX 8700" in the February 1989 *Newsletter*). SAS/Graph PostScript drivers can create PostScript output in external files that you can route to a PostScript printer. Five resolutions are provided (72, 150, 300, 720, and 1200 dots-per-inch) with the graphics driver named *PSdpi* (for example, PS300). Each will create its respective PostScript output file, *PSdpi.GSF*.

For example, if you want to create a PostScript file at 300 dots per inch and later route it to your Apple LaserWriter, add the following SAS commands to your SAS procedure:

```
GOPTIONS DEVICE=PS300 GSFLN=132 GSFMODE=REPLACE
NODISPLAY;
```

To execute SAS, issue the following commands:

```
SETUP SAS /V=SAS518
SAS input_filespec
```

After Tuesday, March 14, 1989, the */V=SAS518* option is no longer necessary.

If your PostScript printer is serviced by a CTD VAX cluster queue,¹ print the graph by entering:

```
PRINT/QUEUE=queue file-spec
```

where "queue" is the VMS queue servicing the PostScript printer and "file-spec" is the name of your PostScript file.

If the PostScript printer is on the Laboratory-wide NJE network, enter:

```
PRINT/QUEUE=DEST_PRINT/PAR=node.printer file-spec
```

where "node" is the printer's nodename, "printer" is the printer name, and "file-spec" is the name of your PostScript printer. Alternatively, you may wish to use the following command:

```
PSLIST file-spec node::printer
```

where "file-spec" is the name of your PostScript file and "node::printer" is the name of the NJE node and printer where you want your PostScript file to be plotted. For additional information about routing print files to NJE printers, see "VAX Cluster Print Capability Extended for Network Printers" in the April 1988 *Newsletter*.

Complete information about SAS commands for PostScript output appears in *SAS Technical Report P-178, Additional SAS/GRAPH Hardware Interfaces, Release 5.18*. CTD will order this and other SAS technical reports for users on request.

CGM METAFILE CAPABILITY ADDED TO SAS

In the previous release of SAS (which was SAS 5.16), CTD provided a Computer Associates (CA) DISSPOP metafile capability (see "SAS Graphs May Now Be Sent to Argonne Graphics Devices" in the January 1989 *Newsletter*). With the installation of Release 5.18 (see "SAS Release 5.18 Installed As a Test Version on the VAX 8700" in the February 1989 *Newsletter*), CTD has added the ability to create Computer Graphics Metafiles (CGM). The binary CGM metafile format is both an American National Standards Institute (ANSI) and International Standards Organization (ISO) standard and can be used as input to many popular personal computer graphics programs (for example, SuperImage, FreeLance Plus, and Harvard Presentation Graphics) for enhancement.

To create a CGM metafile, first enter SETUP SAS. Prior to March 14, 1989, you must enter the DCL command:

```
$ SETUP SAS /V=SAS518
```

¹ On request, CTD will establish queues for remote printers. See "Central VAX Cluster Remote Printer Service Available" in the July 1988 *Newsletter* or contact either Rich Raffennetti at extension 2-8497 or Barry Miller at extension 2-6808.

Then define the CGM device driver to SAS by adding the qualifier /DEVICE=CGM to your SAS command line. For example, if you wish to run your SAS procedure interactively, enter:

```
$ SAS /DEVICE=CGM
```

If your SAS input is in a file, enter the command:

```
$ SAS /DEVICE=CGM mysasfile.sas
```

Do not code "DEVICE=..." on your GOPTIONS statement! After the successful completion of the SAS procedure, you will find a new copy of the file CGMBOUT.DAT in your default directory.

You can use the CGMPOP procedure to display your CGM metafile on one of several types of graphics display terminals or to convert it into a CA DISSPOP metafile.

The CGMPOP utility expects an input filename of CGMBIN. Enter the following commands to define the filename and to execute CGMPOP:

```
$ DEFINE CGMBIN CGMBOUT.OUT
$ CGMPOP
```

Alternatively, you may also rename CGMBOUT.DAT to CGMBIN.DAT and omit the **DEFINE** command. A menu of output devices will appear. Depending on the device you select, the system may ask you to enter additional device information. Once you have entered all the information, CGMPOP will read the CGM data and will generate the output. You can also use this CGM metafile as input to the **HARDCOPY** command for obtaining hardcopy output (such as on a Matrix 35mm camera or a CalComp 5835 electrostatic plotter).

BITS & BYTES

PARDON OUR DUST AGAIN!

CTD is making room to accommodate new initiatives and expanded programmatic activities. People who come to Building 221 to pick up documents from the Document Distribution Counter or output from the distribution bins may experience some delays as we continue to work around the various construction and relocation efforts in progress. We expect such delays to be minimal. Announcements of any planned service interrup-

tions will be made in advance in the online NEWS and the Current System Status Recorded Message (extension 2-5466). The Recorded Message will also report any unexpected service interruption.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

Recent UNICOS Articles and MVS Station Class Notes makes additional UNICOS information more easily available to Argonne Cray users prior to the publication of *Guide to UNICOS at ANL* (ANL/TM 460). CTD has assembled relevant *Newsletter* articles and MVS station class notes in this document. Until *Guide to UNICOS at ANL* is actually published (probably later this spring), this document along with the current draft (June 6, 1988) of *Guide to UNICOS at ANL* will allow Argonne Cray users convenient access to all locally available UNICOS information.

Other Vendor Documents

First Facts (QG99DS11FFS) introduces novice users to the features of the CA-Disspla graphics system. The manual presents a variety of examples to show you how to generate graphics. Each example is a working Fortran program that produces the graphic shown with the code. With CA-Disspla, you can produce line, bar, and pie charts; Gantt charts and calendars; three-dimensional graphs and three-dimensional models of objects; multiple graphs or pictures displayed with text; contour diagrams and cartographic mapping; and displays that interactive menus or realtime data acquisition can modify.

CICS Concepts and Facilities--Student Workbook is a summary of the computer-based training course, "CICS Concepts and Facilities" (CICSPI). Computer-based training offers students the ability to select a convenient time and place for training, hands-on experience, and the ability to work at

their own pace. The *Workbook* is for reference and review of course topics. The organization of the *Workbook* follows the organization of the course; each course session is represented, usually with a summary of the key statements in the session. However, you will not need to follow the *Workbook* page by page as you take the course.

VS COBOL II: Making the Transition--Student Workbook is a summary of the computer-based training course, "VS COBOL II: Making the Transition" (COBOL2). Computer-based training offers students the ability to select a convenient time and place for training, hands-on experience, and the ability to work at their own pace. The *Workbook* is for reference and review of course topics. The organization of the *Workbook* follows the organization of the course; each course session is represented, usually with a summary of the key statements in the session. However, you will not need to follow the *Workbook* page by page as you take the course.

The *NAG Fortran Mini Manual Mark 12* serves as an extensive pointer to the NAG Fortran Library, Mark 12. For each chapter in the NAG Library, this *Manual* provides background advice on the subject area covered, recommendations on the choice and use of routines, and a summary of the purpose of each routine.

Introductory MACSYMA Documentation: A Collection of Papers describes how to access the MACSYMA system as it exists at the Laboratory for Computer Science at the Massachusetts Institute of Technology and how to interact with the environment in which it exists (that is, operating system, monitor, editor, and other programs). The document is divided into three parts: (1) "An Introduction to ITS for the MACSYMA User," (2) "ITS Easy, Once ITS Explained," and (3) "MACSYMA Primer."

The *Argonne Materials Order System (AMOS) Requester's Guide* is a four-page handout that provides some background on AMOS, explains how to place an AMOS order, describes how the vendor fills an AMOS order, and specifies what you must do when you receive your order.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD FEBRUARY 7, 1989

The chair, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:08 p.m.

Status of Computer Protection Audit. Jean Troyer (Computing and Telecommunications) reported that the formal response from the DOE-Chicago audit team is due by mid-March 1989. There are no major adverse findings. Jean thanked those involved for their cooperation and efforts.

Internet Address Changes. Linda Winkler (Computing and Telecommunications) gave a review of the current addressing system and the need to change to the new system and methods. Argonne has been assigned 32 Class C networks, for a total of 8,192 addresses. Currently, we have 14 networks assigned. Recently, Argonne was assigned a Class B address 130.202.xxx.xxx, for a total of 65,536 addresses. These additional addresses will allow expansion of the Argonne networks. CTD plans to move the hosts to the new address on February 20, 1989. Those users who have used the domain names when giving addresses to other sites should have no difficulties or delays. Those users who have used actual addresses should supply domain names to their contacts. The next step is to test subnets of Class B on selected systems and gradually move all Class C networks to Class B subnets. Eventually, the Class C addresses will be returned.

TCP/IP Access for VM. Linda Winkler (Computing and Telecommunications) continued her presentation by discussing the Transmission Control Protocol/Internet Protocol (TCP/IP) interface for VM. The current system has several deficiencies: no name service capability, no capability with RACF, difficulties with both the full screen and line-at-a-time terminal services, file transfer protocol (FTP) that requires a logon to a user virtual machine, and mail capabilities usable only in VM. CTD plans new hardware and software to address these weaknesses in the current system. Users can test the new system in VM with TESTTCP. There seem to be some difficulties with full screen emulation. CTD plans to keep the old system around until IBM and SIMWARE resolve the full screen difficulties. The new system

should become the production system on March 13, 1989.

Cray Use. Doug Engert (Computing and Telecommunications) discussed the use of the Cray over the Christmas holidays and in general. Two users accounted for most of the time charged over the holidays. About 190 hours were charged. There is still time available on the Cray. CTD is trying to attract users outside the Laboratory.

Status of IBM 3033 Replacement Project. Jerry Davison (Computing and Telecommunications) gave a rundown on the preliminary schedule for replacing the IBM 3033's with a 3084 class machine. Argonne will send out the Request for Proposals (RFP) in April 1989. The proposals are due back in May 1989. Argonne will award the contract in August 1989. CTD will install the system in late October 1989. System acceptance will be in late November 1989. CTD will remove the IBM 3033's in December 1989. With the current releases of the MVS and VM operating systems, the new machine will have the same memory addressability currently available.

The meeting adjourned at 3:46 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD FEBRUARY 8, 1989

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m.

Eliot Axelrod (Apple's technical representative for Argonne and the University of Chicago) described and demonstrated the new Apple Macintosh SE/30 that uses a 16 megahertz 68030 chip. It is an Apple Macintosh SE that runs five times faster with a larger internal hard drive (40 or 80 megabytes) and an internal Floppy Drive High Density (FDHD) that formats, reads, and writes to 400K, 800K, and 1.2 megabyte Apple Macintosh floppy disks with the same size and footprint of the original Apple Macintosh. Apple has put the Apple Macintosh IIx architecture and power in an SE box. The FDHD can also read and write to MS-DOS (IBM) disks formatted at 720K and 1.44 megabytes and to Pro-DOS (Apple II) disks. An upgrade path from the Apple Macintosh SE to the Apple Macintosh SE/30 will be available in a few months.

Eliot Axelrod also talked about some of the interesting things that he saw at the recent MacWorld meeting:

- SuperCard (a HyperCard clone by Silicon Beach that corrects difficulties with HyperCard) adds new features and generates stacks that you can use as standalone programs.
- A removable, erasable, optical 650 megabyte disk system for the Apple Macintosh with a Small Computer Systems Interface (SCSI) from Pinnacle Micro. The basic access time to the disk is currently slow like a floppy disk drive, but the potential is there to speed it up by a factor of 100.
- HyperTMON by Icom Simulations, which is a HyperTalk debugger.
- Language Systems Fortran Version 1.2, the first Fortran compiler based in Apple Computer's powerful Macintosh Programmer's Workshop (MPW) environment.
- Parallab (a parallel processing environment from Advanced Rotorcraft Technology) for executing Fortran code faster.

Eliot passed out copies of a new information catalog for Apple programmers and developers called *APDAlog*.

You can check out System 6.0.3 for the Apple Macintosh with the Apple Macintosh public domain library disks, available at the Document Distribution Counter (Building 221, Room A-134). System 6.0.3 is the one to use for the new Apple Macintosh SE/30. System 6.0.2 is available at the Document Distribution Counter and on the Apple Macintosh IIs in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142). Argonne has a site-wide license for these system upgrades.

Paul Steimle (Energy and Environmental Systems), anti-virus team leader for the Apple Macintosh family, reported that Argonne had received updated versions for Vaccine and Interferon that are available on the Apple Macintosh IIs in the Workstation Evaluation and Demonstration Room. No major virus outbreaks have occurred at Argonne. There is a new virus from France that Vaccine or Interferon cannot control. Report any virus difficulties to Paul at extension 2-4148.

The Programmers Special Interest Group normally meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. Call John Mattson (Materials Science) at extension 2-5535 for details.

The Excel Special Interest Group normally meets the fourth Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. However, the next meeting will occur when the new version of Excel (Version 2.0) is available. Please call Ralph Leonard (Chemical Technology) at extension 2-3229 for details.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:45 p.m.

Ralph Leonard, Macintosh Users Group Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD FEBRUARY 9, 1989

Chairperson Bryan Schmidt (Energy and Environmental Systems) opened the meeting at 12:15 p.m. A new Statement of Purpose was adopted that reads as follows:

The purpose of the Graphic Arts Users Group is to provide an open forum for two-way communication so that

the users of Graphic Arts' services can express their needs and expectations for production and design services and comment on how well Graphic Arts is fulfilling those needs and expectations

and

Graphic Arts can inform users of changes in services and their costs, inform users how to use Graphic Arts' services, and obtain feedback from the ANL publications "community" so that Graphic Arts can know the demand and expectations for various services.

Joe Paulini (Graphic Arts) then responded to some of the proposed topics for discussion included on a list that Bryan had distributed during the preceding week.

In regard to unit pricing, Graphic Arts is now working on a combination Users Guide/Catalog/Pricing Guide. It will have detailed information on services and costs and will even include a glossary of terms. To be updated once a year, it should be available in June 1989. In the meantime, Graphic Arts is now printing a brochure with the names and telephone numbers of Graphic Arts personnel and descriptions of the jobs they do and the services Graphic Arts can provide. In response to a comment that Graphic Arts' prices are sometimes cheaper than those of outside vendors, Joe pointed out that for jobs with special requirements or deadlines, Graphic Arts does not charge more than 100 percent over the basic cost of the job, whereas other houses may quadruple their prices for special services.

To improve communications, Graphic Arts is assigning each Customer Service Representative to work with particular divisions. Each representative will visit the divisions on an ongoing basis to distribute information and to discuss services. The immediate target is to contact heavy users and secretaries, but the representatives will be happy to talk with anyone who has questions. Graphic Arts may also set up a display in the cafeteria and plans to have an Open House later in the year.

Recent changes in personnel include Mary Jo Thompson (who is now Acting Coordinator of the Customer Service Group) and Linda Graf (who is now Acting Coordinator of the Design Group). Beth Paluzzi is assisting the service representatives. Audrey Galvin and Vicky Croke are now full-time computer production artists. Graphic Arts has hired Brian Ende as a photographer. Graphic Arts will be looking for a full-time proofreader soon.

Regarding the availability of backup services, Joe stated that Graphic Arts is hooked up by a modem with a typesetter in Chicago, and it can get design and production personnel from a graphic arts temporary agency whenever the need arises.

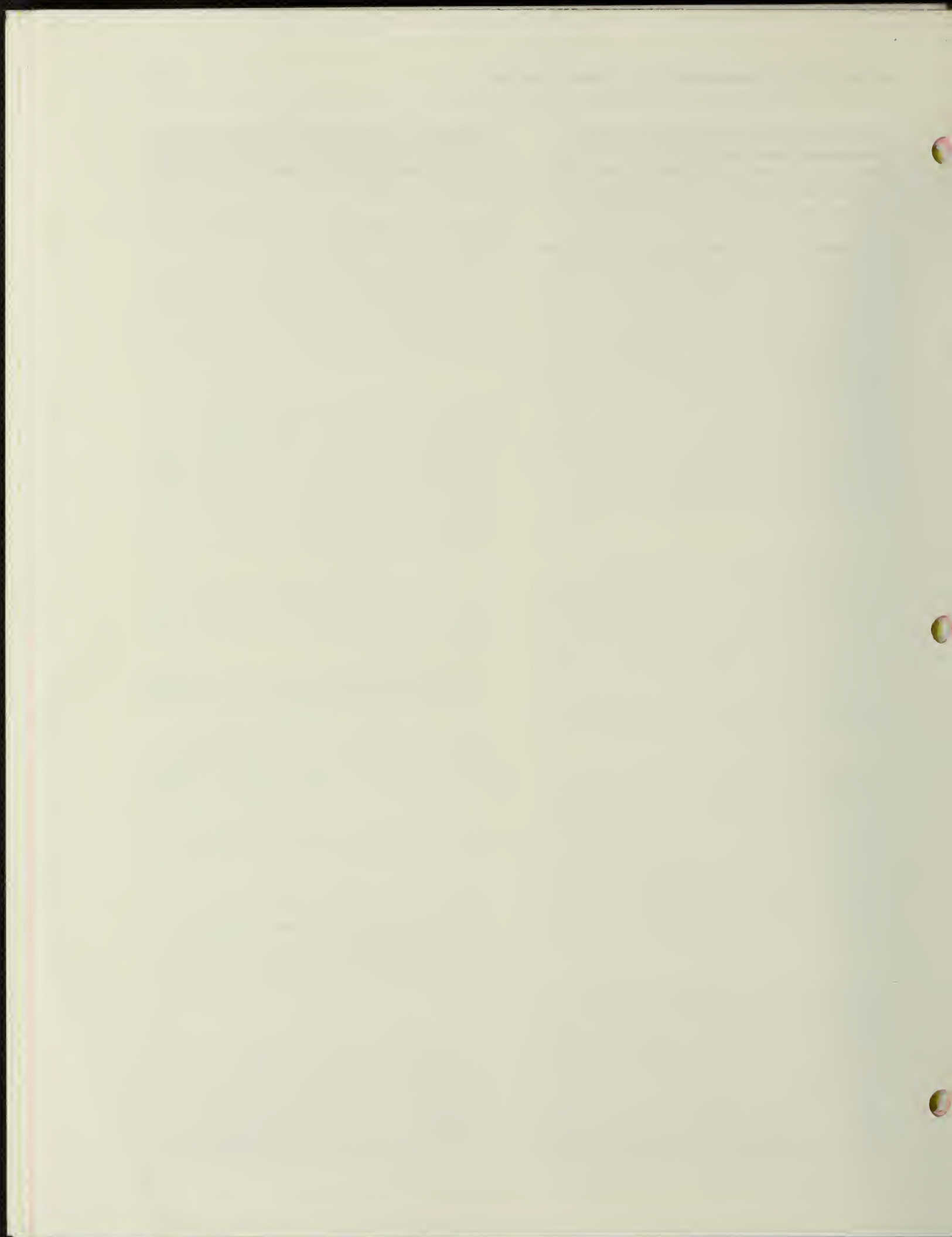
The meeting concluded with a discussion of the agenda for future meetings. Short show-and-tell sessions on unusual jobs will be given by users as often as possible. Graphic Arts will update users on new procedures and give them tips on how to

get their work out more quickly and smoothly. A discussion and a demonstration of the new equipment in Graphic Arts are also planned. In addition, the group will continue to use the list of proposed topics as a source of ideas for future discussion.

Finally, the group voted to meet every other

month after the March 1989 meeting. The next Graphic Arts Users Group meeting will be held on Thursday, March 9, 1989, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary



WORKLOAD STATISTICS (DECEMBER 21, 1988, THROUGH JANUARY 30, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,313	1,304	535
Wylbur	1,598	1,612	493
MVS TSO	54	54	7
CICS	1,598	1,612	90
MVS Batch	1,991	2,007	712
VAX/VMS	387	396	193
Cray	310	309	112
All Systems	1,991	2,007	997

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	13,886	2,411	3,163	19,460	44,302.2	101.33
Wylbur	10,174	370	945	11,489	11,291.3	12.65
MVS TSO	20	0	0	20	13.5	0.01
CICS	22	3	2	27	0.0	1.17
VAX/VMS	8,135	339	850	9,324	8,219.3	158.75
Cray	77	4	10	91	1,110.9	0.04
IBM BATCH						
Class U	11,838	2,124	2,257	16,219	n.a.	43.56
Class W	20,001	1,922	2,297	24,220	n.a.	212.49
Class X	5	1,343	69	1,417	n.a.	86.88
Class Y	0	67	484	551	n.a.	68.61
Class Z	0	0	37	37	n.a.	8.21
Nonmain	14,210	1,447	1,713	17,370	n.a.	0.00
Total	46,054	6,903	6,857	59,814	n.a.	419.75
CRAY BATCH						
u	77	4	10	91	n.a.	0.04
w	2,237	67	109	2,413	n.a.	13.58
x	696	15	12	723	n.a.	15.86
y	3,874	618	986	5,478	n.a.	200.52
Total	6,884	704	1,117	8,705	n.a.	230.00
VMS BATCH						
W BATCH	699	167	213	1,079	n.a.	16.16
X BATCH	15	35	7	57	n.a.	75.36
Y BATCH	3	1	15	19	n.a.	9.80
Total	717	203	235	1,155	n.a.	101.32

INPUT/OUTPUT

Lines Printed	
Local	66,676,655
Remote	48,488,018
Fiche	33,338,193
Cards Punched-Local Only	25,074
Tape Mounts	9,751
Microfiche Developed	4,318
Microfiche Frames Developed	739,113

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	88	n.a.
Matrix 35mm Color	29	168
Matrix-8 x 10	1	6
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	38	353
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	2	3,867
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	23,216
New Tapes Saved	1,206
Tapes Released	1,302
Datasets Exported to Tape	338
Datasets Imported from Tape	512

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (DECEMBER 21, 1988, THROUGH JANUARY 30, 1989)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	18	3	10	1	2	1	1
Hrs Unavailable	16.06	2.91	8.10	2.95	0.95	0.96	0.18
MTF/Unscheduled	241.98				483.96	967.93	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15	3	10	0	1	0	1
Hrs Unavailable	11.48	2.91	8.10		0.28		0.18
MTF/Unscheduled	168.25				336.51		
RED IBM 3033							
All Shifts							
Interruptions	11	4	3	1	3	0	0
Hrs Unavailable	10.31	3.05	1.23	3.16	2.86		
MTF/Unscheduled	324.56				324.56		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9	4	3	0	2	0	0
Hrs Unavailable	6.45	3.05	1.23		2.16		
MTF/Unscheduled	170.77				170.77		

AVAILABILITY STATISTICS, BY SERVICE (DECEMBER 21, 1988, THROUGH JANUARY 30, 1989)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	11	4	3	1	3	0	0
Hrs Unavailable	10.31	3.05	1.23	3.16	2.86		
MTF/Unscheduled	324.56				324.56		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9	4	3	0	2	0	0
Hrs Unavailable	6.45	3.05	1.23		2.16		
MTF/Unscheduled	170.77				170.77		
WYLBUR							
All Shifts							
Interruptions	19	3	10	1	3	1	1
Hrs Unavailable	17.71	3.08	9.23	2.95	1.15	1.08	0.21
MTF/Unscheduled	193.25				322.09	966.28	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	16	3	10	0	2	0	1
Hrs Unavailable	12.93	3.08	9.23		0.40		0.21
MTF/Unscheduled	111.68				167.53		
MVS TSO							
All Shifts							
Interruptions	19	3	10	1	3	1	1
Hrs Unavailable	17.63	3.08	9.23	2.95	1.06	1.08	0.21
MTF/Unscheduled	193.27				322.12	966.36	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	16	3	10	0	2	0	1
Hrs Unavailable	12.85	3.08	9.23		0.31		0.21
MTF/Unscheduled	111.71				167.57		
JES3							
All Shifts							
Interruptions	17	2	10	1	2	1	1
Hrs Unavailable	15.55	1.95	8.31	2.95	1.03	1.08	0.21
MTF/Unscheduled	242.11				484.22	968.45	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	2	10	0	1	0	1
Hrs Unavailable	10.76	1.95	8.31		0.28		0.21
MTF/Unscheduled	168.61				337.23		
CICS							
All Shifts							
Interruptions	1	0	0	0	0	0	1
Hrs Unavailable	1.91						1.91
MTF/Unscheduled	982.08						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1	0	0	0	0	0	1
Hrs Unavailable	1.91						1.91
MTF/Unscheduled	346.08						
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	18	0	0	0	17	1	0
Hrs Unavailable	22.71				21.96	0.75	
MTF/Unscheduled	53.40				56.54	961.28	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	0	0	0	13	1	0
Hrs Unavailable	17.98				17.23	0.75	
MTF/Unscheduled	23.57				25.38	330.01	
CRAY							
All Shifts							
Interruptions	20	11	3	0	6	0	0
Hrs Unavailable	95.38	21.60	0.78		73.00		
MTF/Unscheduled	148.10				148.10		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	8	1	3	0	4	0	0
Hrs Unavailable	16.66	0.50	0.78		15.38		
MTF/Unscheduled	82.83				82.83		

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (DECEMBER 21, 1988, THROUGH JANUARY 30, 1989)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	Advanced Photon Source Div	1.3	0.7	0.0	1.5	3.5
272	Advanced Photon Source	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		1.3	0.7	0.0	1.5	3.5
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	Bio, Envir, & Med Res Div	2.9	1.2	0.5	2.9	7.5
149	BEM Div-Ctr for Envir Res	2.1	0.2	0.0	1.0	3.3
174	Ener/Env/Bio Res Prog Div	0.3	0.0	0.0	0.1	0.3
174	Ener/Env/Bio Res Prog Div	36.3	16.7	0.8	7.3	61.1
190	Energy & Envir Syst Div	1.2	0.0	0.0	0.2	1.4
197	Off of Inter Energy Dev Progs	0.1	0.0	0.0	1.1	1.3
246	TIS - Natl Energy Software Ctr	0.2	0.0	0.0	0.1	0.3
274	Ener/Env/Bio Res Prog Adm	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		43.2	18.0	1.3	12.7	75.2
ENGINEERING RESEARCH						
102	EBR-II Project-ANL West	3.5	0.0	0.9	0.4	4.8
104	EBR-II Project-Illinois	6.0	0.0	0.0	2.2	8.2
107	Chemical Technology Division	2.4	0.0	0.0	36.6	39.0
112	Reactor Anal & Safety	21.0	0.4	5.1	8.7	35.2
114	Matls & Comp Tech Div	13.7	1.3	0.0	4.5	19.5
115	Engineering Div - Ill	1.5	0.2	0.0	0.8	2.5
116	Applied Physics-Illinois	33.2	1.0	16.6	10.8	61.7
117	Applied Physics-ANL West	6.5	0.0	6.8	0.5	13.8
118	Reactor Exp & Exam Div	10.3	0.3	0.2	0.0	11.0
119	Analytical Laboratory ANL-West	0.0	0.0	0.0	0.1	0.1
171	Engrg Res Prog Dir	0.4	0.0	0.0	0.1	0.6
178	Fusion Power Program	0.1	0.0	0.0	2.7	2.7
211	Eng Div-Design Eng Dept	0.1	0.0	0.0	0.1	0.2
269	Chem Tech Div-Analytical Chem	0.1	0.0	0.0	0.4	0.5
271	Engrg Res Prog Admin	0.5	0.0	0.0	0.0	0.5
		---	---	---	---	---
SUBTOTAL		99.2	3.2	29.7	68.2	200.2
EXTERNAL						
750	ACK Work Projects	1.8	0.0	0.0	0.4	2.2
751	ACK Work Projects-Dist	1.2	0.0	0.0	1.0	2.2
752	Office of the Director	13.6	0.0	0.0	1.7	21.3
753	Office of Public Affairs	0.0	0.0	0.0	0.6	0.7
754	Office of Chief Oper Ofcr	0.0	0.0	0.0	0.2	0.2
757	Office of Chief Fin Officer	0.6	0.0	0.0	0.7	1.2
		---	---	---	---	---
SUBTOTAL		17.2	0.0	0.0	10.5	27.8
OPERATIONS						
143	Supp Serv Div - Elec Dept	0.2	0.0	0.0	0.8	1.1
148	Human Resources-Health Dept	1.5	0.0	0.0	0.5	2.0
150	Plant Fac & Serv - Spec Matls	0.2	0.0	0.0	0.1	0.3
161	Tech Info Services Dept	2.3	0.0	0.0	3.2	5.5
201	Office of the Director	0.4	0.0	0.0	0.1	0.5
202	Ofc of Chief Oper Ofcr	0.1	0.0	0.0	0.1	0.2
210	Supp Serv Div - Cent Shops	0.2	0.0	0.0	0.1	0.3
216	Support Services Division	0.2	0.0	0.0	0.1	0.3
222	Plant Fac & Serv-Lodging Fac	0.0	0.0	0.0	0.0	0.0
232	Plant Fac & Serv-Security	0.6	0.0	0.0	0.1	0.7
234	Supp Serv Div-OHS-Health Phy	1.2	0.0	0.0	0.4	1.6
235	Supp Serv Div-Env Safe Health	1.0	0.0	0.0	0.0	1.0
236	Plant Fac & Serv-Fire Dept	0.3	0.0	0.0	1.2	1.6
260	Supp Serv Div-Graphic Arts	0.3	0.0	0.0	0.1	0.4
275	Office of Public Affairs	0.5	0.0	0.0	0.1	0.6
276	Ofc Pub Af - Motn Pic Unit	0.1	0.0	0.0	0.0	0.1
296	Telecom Cost/Recovery	0.0	0.0	0.0	0.7	0.7
315	Supp Serv Div-Matls & Serv	3.0	0.0	0.0	0.1	3.1
316	Plant Fac & Serv-Veh Maint	0.1	0.0	0.0	0.1	0.2
317	Plant Fac & Serv-DriveRig Ser	0.1	0.0	0.0	0.0	0.1
319	Supp Serv Div-Travel Ofc	0.1	0.0	0.0	0.0	0.1
322	Supp Serv Div-Procurement	0.1	0.0	0.0	0.1	0.2
333	QA, Envir & Safety Ofc	0.1	0.0	0.0	0.0	0.1
336	Supp Serv Div - Inspection	0.0	0.0	0.0	7.8	7.8
400	Ofc of Chief Fin Officer	16.8	0.0	0.0	3.1	24.6
401	Accounting	38.0	0.0	0.0	0.0	41.2
402	Ofc Chief Fin Ofcr-Data Entry	0.0	0.0	0.0	0.1	0.1
403	Budget Office	0.0	0.0	0.0	0.0	0.0
410	Human Resources Department	10.9	0.0	0.0	1.5	12.4
412	Affirm Action Program	0.1	0.0	0.0	0.2	0.3
501	Plant Fac & Serv-Bldg Maint	0.0	0.0	0.0	0.0	0.0
502	Plant Fac & Serv-Installation	0.0	0.0	0.0	0.0	0.0
503	Plant Fac & Serv-Grounds	0.0	0.0	0.0	0.0	0.0
504	Plant Fac & Serv-Custodial	0.0	0.0	0.0	0.1	0.1
505	Plant Fac & Serv-Waste Mgmt O	0.1	0.0	0.0	0.1	0.2
506	Plant Fac & Serv-Plant Mgr of	0.7	0.0	0.0	0.0	0.7
510	Plant Fac & Serv-Utility Syst	0.0	0.0	0.0	0.2	0.2
512	Plant Fac & Serv-Fac Plng/Eng	0.9	0.0	0.0	0.0	0.9
530	Site Mgrs Ofc-ANL West	0.1	0.0	0.0	0.0	0.1
531	Personnel-ANL West	0.1	0.0	0.0	0.3	0.4
532	Special Matls-ANL West	1.0	0.0	0.0	0.0	1.0
533	Accounting-ANL West	0.0	0.0	0.0	0.0	0.0
534	Purchasing-ANL West	0.0	0.0	0.0	0.0	0.0
535	Security - ANL West	0.0	0.0	0.0	0.0	0.0
536	Safety Staff-ANL West	0.0	0.0	0.0	0.0	0.0
537	Information Service-ANL West	0.1	0.0	0.0	0.0	0.1
538	Matls Handling-ANL West	0.3	0.0	0.0	0.1	0.4
550	Computer Appl & Serv - ANL-W	0.0	0.0	0.0	0.0	0.0
551	RAD Monitoring-ANL West	0.0	0.0	0.0	0.0	0.0
554	Machine Shop-ANL West	0.0	0.0	0.0	0.0	0.0
556	Site Engrg-ANL West	0.1	0.0	0.0	0.0	0.1
557	Plant Services-AW-Service Req	0.0	0.0	0.0	0.0	0.0
558	Plant Services-AW-Function	0.0	0.0	0.0	0.0	0.0
559	Food Services - ANL West	0.0	0.0	0.0	0.0	0.0
561	Ofc of Quality Assurance - AW	0.0	0.0	0.0	0.0	0.0
563	Talent Resource Pool-ANL West	0.0	0.0	0.0	5.8	5.8
730	Operating Work Projects	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		81.5	0.0	0.0	28.9	110.5
PHYSICAL RESEARCH						
105	Materials Science Division	3.5	2.7	13.6	4.2	24.0
109	Physics Div	1.3	0.3	0.4	1.7	3.7
120	Chemistry Div	1.8	6.4	0.4	-11.4	-2.9
136	Int Pulsed Neut Source Prog	0.1	0.0	0.0	0.5	0.7
137	High Energy Physics Div	1.2	1.6	0.1	2.2	5.2
139	Div of Educational Programs	0.8	0.0	0.0	0.3	1.1
145	Mathematics & Computer Sci Di	0.3	1.0	4.0	5.8	11.1
245	Computing & Telecommunications	13.4	0.0	0.0	2.1	15.5
247	CTD - Communications Services	3.0	0.0	0.0	0.0	3.0
273	Physical Research Program Adm	0.1	0.0	0.0	0.0	0.1
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SUBTOTAL		27.4	12.1	18.5	10.1	68.1
TOTAL		269.9	34.0	49.5	131.9	485.3

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

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COMPUTER-BASED TRAINING COURSES

CTD currently offers 49 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CICS Course

CICSPI	CICS Concepts and Facilities
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CMS Courses

CMS	Using CMS
REXXAP	REXX Application Programming
XEDIT	Using XEDIT

Cobol Course

COBOL2	VS COBOL II: Making the Transition
--------	------------------------------------

Office System Course

OFFICE	Office System Skills and Concepts
--------	-----------------------------------

PROFS Courses

PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
----------	-----------------

MVS Batch Courses

JCL	Introduction to Basic JCL
PGMJCL	JCL for Programmers
MVSUTL	Using IBM Utilities in Application Programming
SORTMRG	Using SORT/MERGE Utilities

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
--------	--

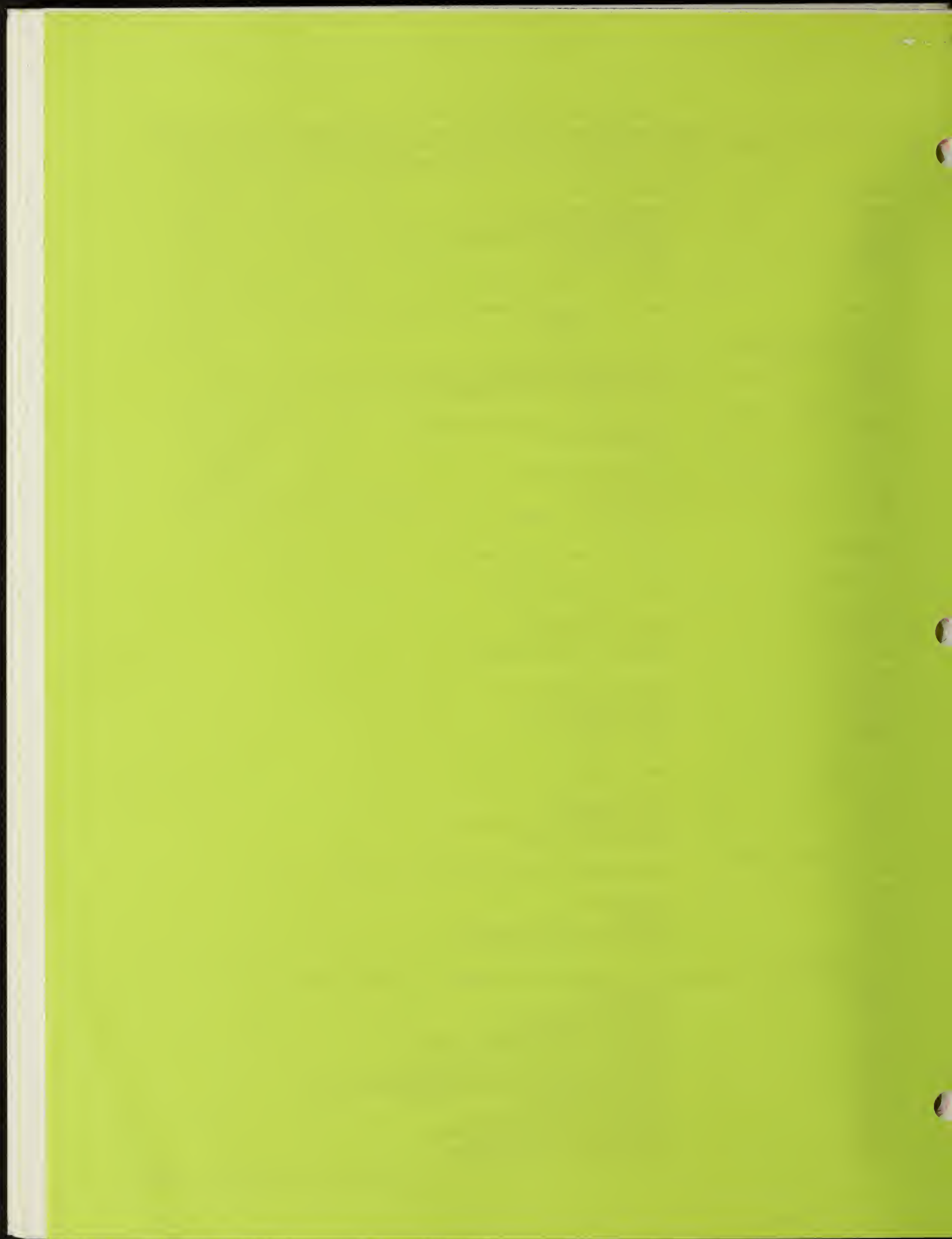
TSO Courses

CLSTPG	CLIST Programming
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQldb2	Using SQL/QMF (DB2): Basic Reporting
SQldb3	Using SQL/QMF (DB2): Advanced Reporting
SQlds2	Using SQL/QMF (DS): Basic Reporting
SQlds3	Using SQL/QMF (DS): Advanced Reporting



1.86/5:
/4

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 20

NUMBER 4

APRIL 1989

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Computer-Based Training Courses

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Camaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	B143	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 4.7, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

COMPUTATIONAL SCIENCE RESEARCH GRANTS AVAILABLE TO ANL RESEARCHERS

The Laboratory Management Council and the Computing and Telecommunications Division (CTD) have established a Computational Science Research (CSR) grant program for the remaining six months of FY1989. This program provides new opportunities for ANL scientists and engineers to use central computing resources for previously unfunded projects of computationally intensive research or significant extensions to ongoing activities. Programs and divisions should prepare and submit proposals to their respective Associate Laboratory Director for allocation of computing resources.

Special emphasis will be placed on new or expanded use of the Cray X-MP/14 supercomputers; however, grants will apply to all central computing resources other than CTD effort. CTD will establish special queues off prime shift for the use of the Cray X-MP to preclude conflicts with existing prime shift users. Division Directors and Program Managers have additional details about the proposal format, the procedures and guidelines for the grant program, and additional details. Projects funded by the Computational Science Research grants must be completed by September 30, 1989.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, May 3-5, 1989) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the hypercube, (4) programming the Distributed Array Processor (DAP), and

(5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Knowledge of Unix and Fortran is strongly recommended. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a \$25.00 charge per person for universities, federal laboratories, and other government organizations and a \$100 charge for commercial organizations.

HIGH-PERFORMANCE COMPUTING SEMINARS

The series of high-performance computing seminars is continuing. Upcoming talks for the months of April and May are:

Zahari Zlatev, University of Illinois at Urbana
**A Sparse Matrix Code for the Alliant FX/8
and Cedar**
Thursday, April 13, 1989

Pierre Leca, ONERA, Chatillon, France
To Be Announced
Tuesday, April 25, 1989

George Cybenko, University of Illinois at Urbana
To Be Announced
Thursday, May 11, 1989

Alan Norton, IBM T. J. Watson Research Center
To Be Announced
Thursday, May 18, 1989

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415. The seminar chairman is Jack Dongarra.

CMS NEWS

PROFS EXTENDED MAIL IN PRODUCTION

On Monday, March 13, 1989, CTD installed the new PROFS Extended Mail system. The new PROFS extends the reach of ANL PROFS users by enabling them to send mail to ANL Unix systems, users on a variety of national networks (including ARPAnet and NSFnet), and networks accessible from BITnet via gateways.

Notes generated by PROFS Extended Mail display a slightly different format than previously used for electronic mail addresses of recipients. Additionally, users who send PROFS mail to BITnet users will no longer receive informational messages as mail is forwarded through the BITnet network.

To send PROFS mail to ANL Unix users or to outside users on Internet, you must have a file called Bnnnnn NAMES (where "Bnnnnn" is your CMS userid) that has nickname entries of the following form:

```
:nick.DOE :name.A. Doe :email.doe@alliant.mcs.anl.gov
:nick.FOX :name.Z. Fox :email.fox@sungate.ctd.anl.gov
```

Use the CMS **NAMES** command to create such entries.

Afterwards, you can issue PROFS commands of the form:

```
PROFS NOTE DOE
```

or

```
PROFS NOTE FOX
```

The system will send your mail to the appropriate destination. To enroll in PROFS, call Account Services at extension 2-5425.

DISSPLA 10.5 NOW THE PRODUCTION VERSION IN CMS

On Tuesday, March 14, 1989, CTD upgraded Disspla 10.5 to production status in CMS. Disspla 10.5 has been available for testing since May 1988. Disspla 10.5 contains several enhancements and corrections for reported bugs. The enhancements include (1) the use of User Map Files, (2) advanced

pie features, (3) the elimination of the need to declare blank common or call routine BCOMON to use the landblanking function, (4) the ability to use both contouring and landblanking in the same program, and (5) improved device interface capabilities, including the American National Standards Institute (ANSI) standard Computer Graphics Metafile (CGM) device driver.

VS Fortran users can include Disspla libraries and the Computer Associates (CA) device drivers in a GLOBAL TXTLIB statement as follows:

```
GLOBAL TXTLIB INTLIB15 D105MOD D105VSA D105VSB VFORTLIB...
```

where "..." indicates other libraries that you intend to use. In addition, VS Fortran users must make the load library VFLODLIB LOADLIB available by entering:

```
GLOBAL LOADLIB VFLODLIB
```

Users who still use the older Fortran FORTHX and FORTHXE compilers should use the following statement:

```
GLOBAL TXTLIB INTLIB15 D105MOD D105HXA D105HXB...
```

where "..." indicates other libraries that you intend to use. In addition, the output file number associated with the COMPRS subroutine has changed to Unit 19 from Unit 22.

Because Disspla libraries contain so many entries, you must increase the number of storage pages used by the **LOAD** command for loader tables. To increase the number of storage pages, enter (in CMS):

```
SET LDRTBLS 10
```

The *CA-DISSPLA User's Manual Version 10.5* (RG 99 DS 1001S) is the latest documentation available. This document is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). Users may update Version 10.0 of the *CA-DISSPLA User's Manual* with the CA-DISSPLA 10.5 update package consisting of Disspla Part F and the *CA-DISSPLA Bulletin of Release Information on Enhancement Fixes, Version 10.5* (DIS-BR-0886), which is also available at the Document Distribution Counter. *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467) will be available by mid-April 1989 at the Document Distribution Counter.

For more information on the use of Disspla 10.5 in CMS, enter:

HELP GRAPHICS DISSPLA

CRAY NEWS

VAX/VMS STATION VERSION 4.01 INSTALLED ON ANLVG

On Monday, March 13, 1989, CTD upgraded the VAX/VMS Supercomputer Gateway VAX/VMS Station Version 3.07 to Release 4.01. Besides containing several new features, Release 4.01 is a major maintenance release.

Argonne uses the attached version of the VAX/VMS Station on the central VAX cluster node ANLVG to access the Cray X-MP/14. The VAX/VMS Station enables users to submit batch jobs to the Cray and to transfer files between the Cray and both the central VAX cluster and VAXes on the Laboratory-wide DECnet. It also provides users with interactive access to the Cray. Several of the 4.01 station's enhancements are listed below. For a complete list, login to ANLVG and enter:

CRAY HELP NEW_FEATURES

The UNICOS data (UD) file format code (-fUD) is now the default on **acquire**, **fetch**, and **dispose** commands. Previously, if you wanted to **fetch** an ASCII file whose VMS record format was anything other than Stream_LF, you had to code -fCB on your **fetch** command. Now, you no longer have to code the -fCB. Future UNICOS releases will no longer permit the character blocked (CB) format; so you should remove -fCB from your UNICOS scripts.

Interactive Cray access is significantly faster. Interactive users can now recall previous UNICOS command lines. The **CINT** command no longer requires the INTERACTIVE keyword to initiate a UNICOS interactive session. To terminate your UNICOS session, you need only enter **exit**. Users can also use the newly designed task-to-task communication between programs running on VMS and interactive jobs running on the Cray system.

New station interactive commands are **CTRL/C**, **CTRL/D**, **CTRL/O**, **CTRL/**, and **SUPPRESS**. The **CTRL/C** notation means that

the control key is held down while the "c" character key is pressed. The interactive commands and their functions are:

CTRL/C Interrupts the current interactive job step.

CTRL/D Sends an end-of-file (EOF) record to UNICOS. Normally required for terminating UNICOS input to an application from the terminal.

CTRL/O Toggles interactive output from the Cray system on and off until the Cray prompt appears.

CTRL/ Interrupts the current interactive job step and writes a core dump.

SUPPRESS Suppresses the echoing of the next input line typed.

Release 4.01 provides an enhanced documentation set for users of UNICOS systems. The new documents included in the set are *DEC VAX/VMS Station Reference Manual* (SV-0020 4.01), *DEC VAX/VMS Station Ready Reference* (SV-0102 4.01), *DEC VAX/VMS Station Primer for UNICOS* (SV-0361 4.01), and *DEC VAX/VMS Station Guide to Common Access Facilities* (SV-0362 4.01). These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

GRAPHICS NEWS

GRAPHIC ARTS SOLICITS USER TEST FOR NEW OUTPUT DEVICES

Recently, Graphic Arts acquired a color PostScript printer and a 35mm film recorder and is testing various software packages on them. Graphic Arts invites users to send test files to these new printers, especially those users whose software is not listed in this article. For more information, call Mary Jo Thompson at extension 2-3740.

The QMS ColorScript 100 color PostScript thermal printer is a 300 dots per inch, paper or transparency, 8.5-by-11 inch or 11-by-17 inch printer. It has AppleTalk, RS232, and centronics ports. The printable area is 8.11-by-8.91 inches for

8.5-by-11 inch paper and 10.66-by-14.91 inches for 11-by-17 inch paper. Both paper sizes have a .2 inch left margin and a 1.26 inch bottom margin. Users on the Laboratory-wide NJE network can test the color QMS printer by first calling Michele Szawars at extension 2-7062 and then sending PostScript files to destination ANLOS.RM111PR2.

We have produced successful results from the following products:

Adobe Illustrator 88 (Apple Macintosh)
Aldus FreeHand (Apple Macintosh)
Mathematica (Apple Macintosh)
Quark XPress 2.00 A (Apple Macintosh)
Ready, Set, Go! 4.5 (Apple Macintosh)
Disspla 11
Tellagraf

We have tested the following products with less success:

MacDraw II (Apple Macintosh)
Cricket Presents (Apple Macintosh)
Cricket Graph (Apple Macintosh)
Aldus Persuasion (Apple Macintosh)
Microsoft PowerPoint (Apple Macintosh)
Chem3D Plus 2.0 (Cambridge Scientific)
(Apple Macintosh)

The Montage FR1 film recorder is a 35mm camera with a 2,048-by-1,365 pixel resolution and a 4,996-by-2,031 pixel resolution. It is a Small Computer Systems Interface (SCSI) device hardwired to an Apple Macintosh and will work only from an Apple Macintosh. It will image many presentation and art packages and most PICT files.

We have verified that the following software successfully works with the Montage recorder:

Microsoft PowerPoint
Aldus PageMaker 3.0
Aldus Persuasion
Cricket Presents
Microsoft Word (through SuperGlue)
FreeHand (through Persuasion, 8 colors maximum)
MacDraw II v1.1 (with color clipboard selected)
Chem3D Plus 2.0 (Cambridge Scientific)

We have had difficulties with the Adobe Illustrator 88.

PRINTER PLOTS AVAILABLE FOR CRAY X-MP UNICOS AND MVS

In response to Cray and MVS user requests, CTD has implemented a new program for processing CA/ISSCO Disspla POP metafiles for line printers. Now you can plot POP metafiles produced by the COMPRs driver on any line printer with either the new UNICOS **pprt** utility program on the Cray X-MP or the MVS PPRT catalog procedure.

The **pprt** program produces a low resolution plot that has a default plot width of 132 characters (see Figure 1). Scaling is 10 characters per inch in the x-direction and 6 characters per inch in the y-direction. The program uses built-in symbols to depict the angle and the number of vectors that pass through a point on the page (pixel). Hardware characters are device-dependent and only one size.

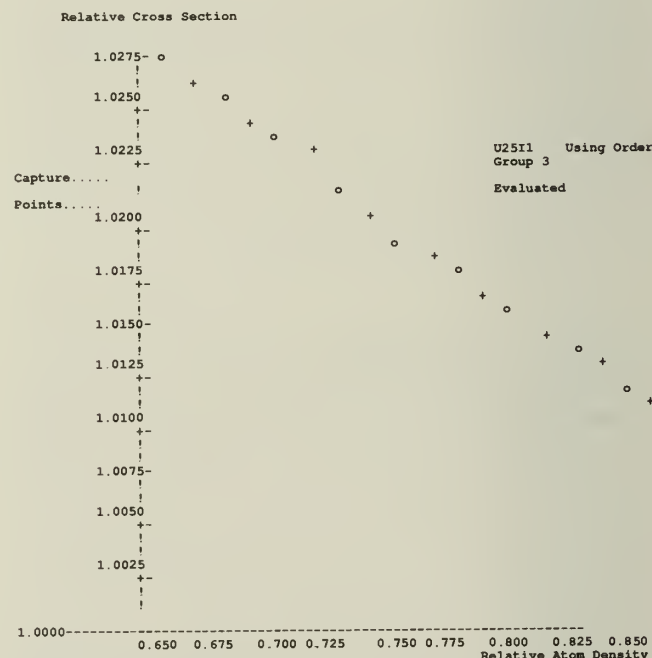


Figure 1: Sample Printer Plot

The Cray **pprt** utility is in the user's default UNICOS search path in file **/usr/anl1/pprt**. Users can invoke this utility by including a **pprt** statement in their UNICOS batch job at the point at which the plotter output is to be written.

pprt [-d filed] [-p filep] [-o fileo]

where: **-d** *filed* is the filename of an optional postprocessor directives file. The default directives are in file **/usr/anl1/pprt_dirs**

-p *filep* is the filename of the Disspla POP metafile. The default file used is **./popfil**

-o *fileo* is the filename used for the plotter output. By default, **pprt** concatenates the plotter output to the file **./output**

The **-d**, **-p**, and **-o** parameters are optional and default to installation-defined values. Users can override one or more of these parameters to tailor the **pprt** command to their working environment.

In MVS, users can print their POP metafiles by entering the following JCL:

```
// EXEC PPRT,INDSN='datasetname'
```

where "datasetname" is the name of your POP metafile.

The system sends output from the procedure to Fortran Unit 10 by default. You can indicate a specific printer with the following **//*FORMAT** card:

```
//*FORMAT PR,DDNAME=FT10F001,DEST=...
```

MANAGEMENT INFORMATION SYSTEMS

ADMINISTRATIVE LONG-RANGE PLAN INPUT REQUESTED

Each year, CTD publishes *A Plan for Administrative Computing at ANL*. This *Plan* describes administrative computing systems planned or in use throughout the Laboratory. Management Information Systems (MIS) develops this document with the users of the administrative systems and the Administrative Data Processing Oversight (ADPO) Committee. To make the *Plan* as comprehensive and relevant as possible, MIS collects information about all administrative computing in the Laboratory.

J. O'Kelley, Chairman of ADPO, requests all division directors, department heads, and project

managers to contribute to the *Plan*. Information contained in the *Plan* about administrative systems includes:

- Descriptions of all existing administrative computing systems at the Laboratory (including those on personal computer systems and mini-computers).
- Proposals for administrative system development and system enhancements.
- Descriptions of computer hardware used or planned for each administrative system: personal computers, minicomputers, and central IBM computers.
- Requirements for obtaining data electronically from an official administrative system to be used in your systems.
- Division plans for developing divisional administrative systems.

The ADPO Committee will begin to review proposals for FY1990 through FY1992 in May 1989. For assistance in developing your administrative computing plans, contact MIS at extension 2-7156.

INTEGRATED FINANCIAL SYSTEM PRODUCTION CUTOVER PLANS

In April 1989, following the successful completion of the February 1989 parallel test, the Integrated Financial System (IFS) Project Team will run IFS as the Laboratory's primary financial system. The current Financial Information System (FIS) will be run as a backup system only in April 1989. Once we have reported this information to the Department of Energy, we will decommission FIS and will archive the FIS data files to provide historical reporting.

Financial Management System (FMS) users should be aware that reports will not be available through FMS for April 1989 data. The Project Team will produce the critical financial reports for April 1989 and May 1989 data from the IFS database, as identified by the Financial Reporting Working Group (FRWG). In June 1989, we will migrate IFS to the production Customer Information Control System (CICS) environment. At this time, we will train users to obtain their financial reports from Information Expert.

At the March 1989 meeting of the Financial Applications Committee to Effect Telesis (FACET), the FRWG presented preliminary information about the availability of IFS reports. We will provide more up-to-date information at the April 1989 FACET meeting. The FRWG representatives should have contacted all FMS users about their reporting needs from IFS. Any FMS user who has not been contacted should immediately

call their FRWG representative (see Table 1) to communicate their reporting needs to the Project Team.

Progress on all phases of the project will be reported at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

Table 1: FRWG Representatives

Area	Representative
Advanced Photon Source	Joanne I. Day
Plant Facilities and Services	Duane R. Bradley
Support Services	Susan C. Long
Energy, Environmental, and Biological Research	Pamela J. Styka
Office Of The Chief Financial Officer	Rodney L. Surman
Engineering Research	Beverly J. Woelfer
Physical Research	Paul A. Eident
Other Areas	Beverly A. Quinn

CICS ACCESS BOOKLETS AVAILABLE

Three new booklets describe recommended step-by-step procedures for accessing the Customer Information Control System (CICS) from your full screen terminal or line-oriented terminal, your IBM Personal Computer, or your Apple Macintosh. *Network Access to CICS: Full Screen Terminal or ASCII Terminal*, *Network Access to CICS: IBM Personal Computer*, and *Network Access to CICS: Apple Macintosh* will soon be available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

These booklets are particularly helpful when a user has to pass through the communications network in accessing CICS, because they show the intermediate screens that a user would see displayed on the terminal or computer, with appropriate instructions on how to proceed. CICS users will want to obtain the booklet that focuses on their terminal or computer. Those who access the new Integrated Financial System (IFS) will find these booklets particularly valuable.

MVS NEWS

DISSPLA 10.5 NOW THE PRODUCTION VERSION IN MVS

On Tuesday, March 14, 1989, CTD upgraded Disspla 10.5 to production status in MVS. Disspla 10.5 has been available for testing since July 1988. Disspla 10.5 contains several enhancements and corrections for reported bugs. The enhancements include (1) the use of User Map Files, (2) advanced pie features, (3) the elimination of the need to declare blank common or call routine BCOMON to use the landblanking function, (4) the ability to use both contouring and landblanking in the same program, and (5) improved device interface capabilities, including the American National Standards Institute (ANSI) standard Computer Graphics Metafile (CGM) device driver.

To use Disspla 10.5 with VS Fortran in MVS, add the parameter

```
PRELIB='SYS1.DISLIBVS'
```

to the cataloged procedure you use when linking or loading your plotting programs. Fortran H Extended users should use:

```
PRELIB='SYS1.DISLIBHX'
```

The *CA-DISSPLA User's Manual Version 10.5* (RG 99 DS 1001S) is the latest documentation available. This document is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). Users may update Version 10.0 of the *CA-DISSPLA User's Manual* with the CA-DISSPLA 10.5 update package consisting of Disspla Part F and the *CA-DISSPLA Bulletin of Release Information on Enhancement Fixes, Version 10.5* (DIS-BR-0886), which is also available at the Document Distribution Counter. Computer Associates (CA) has changed the Fortran unit assignments for metafile input from Fortran Unit 21 to Fortran Unit 18 and for metafile output from Fortran Unit 22 to Fortran Unit 19. For a list of MVS Fortran unit assignments, see Table 5 in *ANL Supplement to the CA-DISSPLA User's Manual* (ANL/TM 467), available by mid-April 1989 at the Document Distribution Counter.

BMDP 88 STATISTICAL PACKAGE AVAILABLE IN MVS

The Biomedical Computer Programs (BMDP) 1988 version statistical package from BMDP Statistical Software, Inc. is available in MVS with the following new features:

- The ability to create STACK variables, which are combinations of the levels of grouping variables.
- Improvements in weighting options.
- The ability to format data listings in most programs with a new PRINT FIELDS option.
- The ability to reset all options between runs.
- Enhanced output in many programs.

This updated version has new programs for Unbalanced Repeated Measures Models with Structured Covariance Matrices and for Correspondence Analysis.

MVS users can use the 1988 version of BMDP by using the following JCL:

```
//stepname EXEC BIMED,PROG=programname
```

where "programname" is the name of the BMDP program to be run. MVS users who want to execute the 1988 version of BMDP with their Fortran 77 programs can enter:

```
//stepname EXEC BIMEDT,PROG=programname
```

where "programname" is the name of the BMDP program to be run. MVS users who want to execute the 1988 version of BMDP with their SAS 5.18 programs can enter:

```
//stepname EXEC SASBMDP
```

BMDP and new features in the 1988 version are documented in the *BMDP88 Statistical Software Manual* (Volumes 1 and 2), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

PERSONAL COMPUTING AND WORKSTATIONS

COMPUTING WORKSTATION, EQUIPMENT, SOFTWARE, AND PERIPHERALS ACQUISITION PROCEDURE SIMPLIFIED

The Laboratory has modified the procedure for acquiring computing workstations, equipment, software, and peripherals. Items that cost less than \$1,000 no longer require the submission of a "Computing Workstation, Equipment, Software, and Peripherals Acquisition Justification" (ANL-489) as justification of need, because such items are approved at the discretion of the individual Division Director or Department Manager. Items that cost \$1,000 or more still require an ANL-489 attached to a "Purchase Requisition" (ANL-451) and submitted to your Division Director or Department Manager for approval.

This change is documented in the *ANL Statement of Site Strategy for Computing Workstations* (ANL/TM 458), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

ELECTRONICS PROVIDES SUN WORKSTATION SUPPORT SERVICES

The Electronics Department has extended its DEC/IBM/Apple support services to include installation, local area networking, and maintenance services as well as development of engineering applications for Sun workstations. Electronics

engineers are developing the capability to implement Sun-based distributed real-time systems for data acquisition and instrument control applications. Electronics also has trained and experienced personnel and repair parts and spares for servicing the Sun-3/50, Sun-3/60, and Sun-3/140 workstations; model 514A disk and tape subsystems; and both monochrome and color monitors. Electronics will implement servicing of the higher level Sun-3/280 systems during the fall of 1989.

With trained and experienced personnel and an inventory of repair parts and spares onsite, Electronics can provide quick response to requests for computer service and can minimize system downtime. Electronics will service workstations on either a time-and-material basis or on an annual contract basis at a fixed cost. Individuals contemplating the purchase of Sun workstations should contact Electronics prior to issuing a Purchase Requisition (ANL-451) for information on the systems and the choice of peripherals (Sun and lower cost equivalents).

For information on Sun engineering applications, call extension 2-6972. For information on Sun computer systems, installation, maintenance, and fixed price service contracts, call extension 2-6969.

MS-KERMIT 2.31 BUG

The MS-Kermit 2.31 program distributed by CTD has a bug that has frustrated a few users. Users who create their own Script files to automate their logins may have found that Kermit does not recognize the GOTO labels (contrary to the Kermit documentation). To circumvent this bug, you must allow one blank space after the label name for Kermit to recognize it. Labels must appear in the form:

`:labelname` (followed by at least one blank space)

The authors have fixed this feature to work as documented in Kermit Version 2.32, which will be available in the near future.

VAX/VMS NEWS

HOW BATCH JOB SCHEDULING WORKS ON THE CENTRAL VAX CLUSTER

CTD has configured the VAX 8700 system to ensure good interactive response during the prime shift and to encourage users to defer intensive batch computations to the overnight and weekend shifts. The availability of batch queues and their cost multipliers changes from shift to shift as described in Table 2 to accommodate the above use objectives.

CTD processes all batch work first-in first-out (FIFO) within a queue and schedules the W queues before the X queues and schedules the Y queues last.

CTD makes no commitments about when Class Y work will be processed. Depending on the workload, CTD may decide that some batch jobs in the X queues for more than 15 hours can be released during the prime shift. CTD provides the SPECIAL_X_BATCH and SPECIAL_Y_BATCH queues for jobs that must exceed the standard quotas for time and memory provided by the other queues. Operators may schedule shorter jobs from the SPECIAL queues before longer jobs, especially when a scheduled shutdown would interfere with running the longer special jobs in FIFO order.

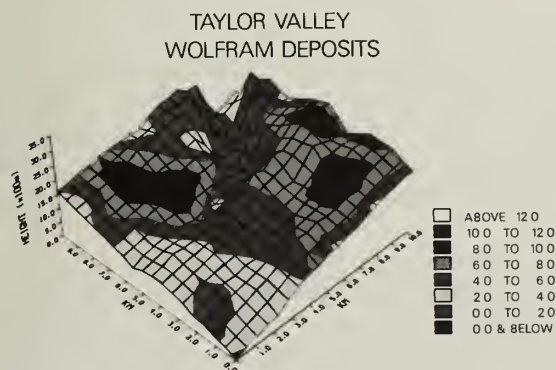
Because of this uncertainty about when special jobs will run and the risk that they may not complete without interruption, we request that users contact User Services before using these special queues.

Table 2: Central VAX Cluster Batch Job Scheduling

Shift	Available Services	CPU Limits	Cost Multiplier
Prime Shift 7:00 a.m. to 7:00 p.m. Monday-Friday	SHORT_W_BATCH W_BATCH	5 minutes 60 minutes	1.00 1.00
Overnight 7:00 p.m. to 7:00 a.m. Monday-Friday	SHORT_W_BATCH W_BATCH X_BATCH SPECIAL_X_BATCH Y_BATCH SPECIAL_Y_BATCH	5 minutes 60 minutes 60 minutes no limit 60 minutes no limit	0.75 0.75 0.50 0.50 0.30 0.30
Weekends and Holidays 7:00 a.m. Saturday to 7:00 a.m. Monday	SHORT_W_BATCH W_BATCH X_BATCH SPECIAL_X_BATCH Y_BATCH SPECIAL_Y_BATCH	5 minutes 60 minutes 60 minutes no limit 60 minutes no limit	0.75 0.75 0.50 0.50 0.30 0.30

DISSPLA VERSION 11.0 INSTALLED ON THE VAX 8700

CTD has installed Disspla 11.0 from Computer Associates (CA) on the VAX 8700 for testing. Disspla is a subroutine library for programming applications that represent data graphically. This article contains an overview of Disspla 11.0 enhancements and information describing how to use Version 11.0 on the VAX 8700. Figure 2, Figure 3, and Figure 4 depict some of the new capabilities:



WELK CANYON PARK

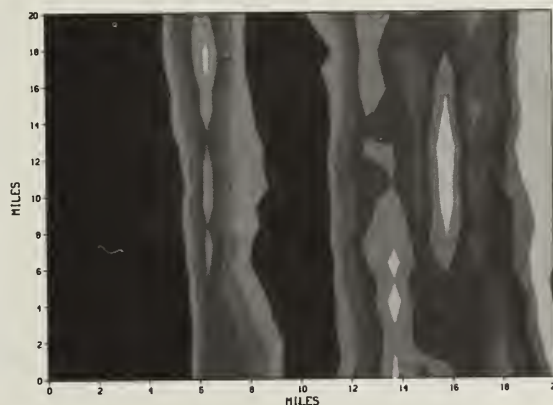


Figure 3: 2-D Contour Shading

Figure 2: 4-D Contour Shading with Mesh



Figure 4: Object Rendering and Highlighting

OVERVIEW

Disspla 11.0 consists of a basic system for general purpose 2-D and 3-D graphics and three option packages: the Productivity Option, the Presentation Option, and the Engineering Option.

Basic Graphics System

Axes	sets up linear, log, log-linear, polar, date, and arbitrary labeled axes.
Curves	draws curves with various types of interpolation, smoothing, and marker symbols.
Figures	draws bar charts, pie charts, simple lines, and conic sections.
Text	draws text by using various fonts and alphabets.
Shading	shades regions with various patterns and shades an area with a raster.
Blanking	shields certain regions from drawing either automatically or through user specification.
3-D	draws 3-dimensional curves and surfaces and shades contours on a surface.
Metafiles	generates and translates Computer Graphics Metafiles (CGM) and proprietary metafiles for Disspla and CA-GKS.

Productivity Option

Dynamics	creates and manipulates graphical segments by using locator, stroke, valuator, choice, pick, and string input.
Codebook	generates Fortran applications programs for Disspla automatically. CA has updated all Codebook stencils for the Fortran 77 library.

Presentation Option

Layout	merges text and graphics produced by Disspla.
Business	produces business graphs and charts by using enhanced bar and pie drawing functions and calendar axes.

Engineering Option

Mapping	draws world coastlines and political boundaries and shades U.S. state outlines by using various map projections.
CA-GKS	produces applications conforming to the international standard Graphics Kernel Standard (GKS).
Contours	draws, labels, and shades between contour lines in a plane.
Object	renders 3-dimensional objects as shaded rendering displays or wire frames with hidden lines removed.

ENHANCEMENTS

CA has implemented Disspla 11.0 in separate Fortran 77 (default) and Fortran 66 libraries. CA has supplied the Fortran 66 library for applications written in Fortran 66 that use Hollerith data types stored in REAL variables. With the Fortran 77 library, you no longer need to code `%ref()` when passing Fortran 77 string variables to a Disspla routine.

Disspla 11.0 provides a new routine, `SYSBUF`, for allocating process virtual memory. Previously, Disspla managed memory within internal storage areas that restricted the size of some applications. `SYSBUF` allows applications to allocate and use process virtual memory; applications are now restricted only by the size of their process space.

Disspla/CA-GKS recognizes over 300 different graphics devices. The logical name `DISLIB_INTDOC` defines a directory containing basic instructions on the use of particular devices. This directory contains individual documents for each device as well as a collective document that you can print. For example, to obtain information about the use of the PostScript device driver, enter the DCL command:

```
$ type/page dislib_intdoc:postsct.doc
```

Sample Fortran source programs showing how to interface with specific devices are in the directory pointed to by the logical name `DISLIB_INTSRC`. Devices used with CA-GKS and the Dynamics feature of CA-Disspla require further documentation. See the "Devices" chapter in Volume 2 of the *CA-Disspla User Manual*, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Version 11.0 has an online HELP library, which is available when you execute the **SETUP** function (see below). It describes each Disspla routine and its calling sequence. Both topic area (**HELP CA-DISSPLA TOPICS**) and routine name (**HELP CA-DISSPLA NAMES**) provide access to routines.

USAGE

To use Disspla or CA-GKS, you must write an application program in a language compatible with Fortran. The application is then compiled. Before linking the application program with Disspla Version 11.0, you must first issue the DCL command:

```
$ SETUP DISSPLA
```

There are several options for linking your application program. They include (1) shared versus non-shareable image linking, (2) use of the Disspla or CA-GKS object libraries, and (3) use of Fortran 77 or Fortran 66 object libraries.

Linking your application program to the shareable image can decrease the disk space required for your executable images. For example, a simple Fortran test program containing calls to nine Disspla routines was reduced from 568 disk blocks to 7 disk blocks by linking to the shareable image. To link to the shareable image, enter the VMS command:

```
$ LINK program,DISSHR/OPT
```

where "program" is the object file for the application program.

To run the program linked to the shareable image at a later session, you must issue the **SETUP DISSPLA** command to make the Disspla 11.0 shareable image libraries available.

To link your program without the shareable image, enter the VMS command:

```
$ LINK program,DISLIB/OPT
```

Programs linked without the shareable image may be run later without setting up Disspla 11.0.

To link to the CA-GKS library, enter the VMS command:

```
$ LINK program,GKSLIB/OPT
```

If you have an existing application program that requires the Fortran 66 Disspla library, you must issue the following **SETUP** command:

```
$ SETUP DISSPLA /V=FORT66
```

We encourage you to convert your Fortran source code to Fortran 77. Within one year of the release of Disspla 11.0, CA will begin charging for maintenance of both libraries. CTD does not plan to maintain the Fortran 66 library. Additionally, CA has stated that it will implement future enhancements to Disspla only with the Fortran 77 library.

Those who wish to become familiar with Disspla should consult the "Primer" chapter in Volume 1 of the *CA-Disspla User Manual*, available at the Document Distribution Counter. It contains a tutorial to get you started. On Monday, May 15, 1989, CTD plans to remove Version 10.5 as the production Disspla system from the VAX 8700. If you need help with the test version of Disspla, contact the User Services consultant at extension 2-5405.

INTRODUCING THE VAX CLUSTER SETUP FUNCTION

Users of TeX, SAS, Mass-11, or ANSYS on the VAX cluster are already familiar with the **SETUP** function. **SETUP** is a CTD tool that invokes procedures to make application products available to users for interactive and batch work.

SETUP commands do not execute the application; they configure the environment for a particular application. You can issue SETUP commands interactively or in batch procedures. If you frequently use a product, you may want to include the appropriate SETUP command in your LOGIN.COM file.

A SETUP command defines logical names and symbols for an application, which makes application specific commands and HELP libraries available to the user.

SETUP should enhance VAX/VMS performance, because logical names and symbols are defined for the user's process rather than for the system. VMS always looks at the process table first before looking at the system tables.

You can use SETUP commands to invoke alternate versions of an application. To invoke the production version without any options (that is, for TeX use), enter:

```
$ SETUP TEX
```

For the test version of TeX, enter:

```
$ SETUP TEX/v=TEST
```

To display a list of the applications that SETUP makes accessible, enter:

```
$ SETUP LIST
```

To display information on how to use SETUP, enter:

```
$ SETUP HELP
```

To display information about the application "product" and versions available through SETUP, enter:

```
$ SETUP HELP product
```

BITS & BYTES

SPEAKEASY IV VERSION EPSILON SCHEDULED FOR PRODUCTION

On Monday, May 1, 1989, Speakeasy IV Version Epsilon will become the production version in CMS. The new features in this release of the Speakeasy IV System are fully described in *Highlights of Epsilon*, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Among the new features of Epsilon are the first official release of a major new graphics package and a preliminary release of keyword-driven online documentation. Since these features are still under development, you can report difficulties or suggestions to the User Services consultant (at extension 2-5405), who will report them to the vendor.

Also included with this release are a variety of new matrix manipulation operations, a new Speakeasy interface to Fortran subroutines and functions, and many efficiency enhancements.

Before May 1, 1989, to use Speakeasy IV Epsilon, issue the following commands:

```
CP LINK SPEAKEZ 2 vaddr  
ACCESS vaddr filemode  
SPEAKEZ
```

where "vaddr" is any unassigned virtual address and "filemode" is any unassigned filemode letter occurring alphabetically before any filemode letter associated with the SPEAKEZ 1 minidisk in your virtual machine.

For a complete description of Speakeasy, see the *Speakeasy IV Reference Manual*, available at the Document Distribution Counter. For information on the new features and the changes in Speakeasy IV Epsilon, enter:

```
SPEAKEZ  
HELP NEWS
```

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,650 computers at over 930 sites. Since the last *Newsletter* article in February 1989, the following universities and organizations have joined BITnet:

Aichi Institute of Technology
 Faculty of Agonomic Science--Gembloux
 Federal Institute for Technical Physics--
 Braunschweig
 Foreign Relations Coordination Unit--
 Cairo, Egypt
 Indiana University/Purdue University
 Fort Wayne Campus
 Industrial Technology Research Institute--
 Taiwan
 INFN--Bari
 International Center for Theoretical Physics--
 Trieste
 Jacksonville State University--Alabama
 John B. Stetson University
 Kinki University
 Library of Pedagogic Documentation--Firenze
 Memphis State University
 Murray State University
 National Technical University--Athens
 Natural Sciences and Engineering Research
 Council--Ottawa, Ontario
 Research Consortium--Sardinia
 Russell Sage Foundation--New York City
 Tulsa Junior College
 University of Ioannina
 University of Valencia--Spain
 Wabash College

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

HELP BITNET NODES

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD MARCH 7, 1989

The chairman, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:04 p.m.

Reorganization of the Computing and Telecommunications Division. Dave Weber (Computing and Telecommunications) gave an update on the structure of the Computing and Telecommunications Division. Mike Boxberger leads Computing and Telecommunications Operations, Diane O'Brien Hale leads Management and Information Systems, and Chuck Mueller leads Scientific Applications and Research (see "Reorganization of the Computing and Telecommunications Division" in the March 1989 issue).

ANL Network Managers Working Group To Be Established. Steve Gabelnick (Chemical Technology) reported on the need to form a working group of network managers. Now that many local area networks (LANs) interface to the Laboratory-wide Ethernet, users have the potential to hinder the work of others with software or hardware that causes difficulties over the connection. The new group (a representative from CTD, a chairperson to be selected by the Computing Policy Committee Networking Subcommittee, and a knowledgeable person from each of the cost centers that have a LAN tied to LANmark) will help to minimize this difficulty.

The group will coordinate and implement policy, enforce the agreed-on policy, disseminate networking information to users, and help in responding to network threats. A database will be set up of all online equipment attached to the Laboratory-wide Ethernet. Additional information on equipment that can be added without causing network difficulties will be made available.

U105BW Graphics Service To Be Discontinued. Gary Schlesselman (Computing and Telecommunications) reported that the maintenance contract on the U105BW has not been renewed since usage is so low (only one user). Anyone developing an application that requires this equipment should talk to CTD. The camera is currently available, but CTD will most likely remove it eventually.

Status of VAX/VMS Disk Acquisition. Rich Raffenetti (Computing and Telecommunications) reported on the new disks on the VAX 8700. CTD evaluated twelve proposals, with EMULEX as the low, qualifying bidder. On March 1, 1989, CTD installed the disks, and they are currently in use. CTD added six volumes for 10.5 gigabytes and traded in four volumes for 1.8 gigabytes. CTD also added two storage controllers, bringing the total to four. There are now ten disk drives on the system.

Future cluster plans include the upgrade to VMS 5, a reconfiguration of the disk storage, better PostScript printer support, and a new database class of storage. Currently, CTD is testing Disspla 11.0, SAS 5.18 with a native PostScript driver, Cray Station 4.01, TeX, and ESNNet (MFE-II).

Computing Policy Committee Meeting Report. Dotti Bingaman (Energy and Environmental Systems) reported on the Committee meeting held on February 9, 1989. Dave Weber summarized Cray use: daytime use is high, but nighttime and weekend use is very low. The Committee discussed several suggestions for increasing use and finally endorsed Dave's proposal that \$1 million of the money now collected through the indirect rate for computer center support be moved to a pool for grants to use the Cray. Each Associate Laboratory Director (ALD) would be allocated funds based on last year's computing budget share. The funded grants should focus on new activities in computational science and engineering. An important feature is that one-half of each grant must be used by July 1 or be lost. The Committee also recommended that the grants provide access to the Cray only during off-peak hours.

Larry Price (High Energy Physics) described the activities of the Networking Subcommittee. A plan for management of networking at Argonne has been developed (see earlier CUG agenda item). The Computing Policy Committee endorsed the plan and designated Joe Asbury and Larry Price to meet with Gail Pewitt to implement it. Another group within the Subcommittee is developing a statement on networking that will focus on the needs of the research community and will describe the long-term goals, requirements, and benefits. The Subcommittee has also heard an analysis of LAN traffic at Argonne and has been informed of progress on ESNnet (Energy Sciences network) and the CHUB (Chicago Hub) network.

Dale Koelling (Materials Science) attended an Executive Committee meeting of the Energy Research (ER) Supercomputer Users Group. He

summarized ER's plans for the acquisition of a Class VII supercomputer and for mass storage and archives. ER will allocate use of this Class VII machine in the same way as with other ER supercomputers; however, prospective users must outline effective use of multiprocessors and make a case for using a parallel processing computer. The availability of this new machine could make selling time on our Cray more difficult.

Finally, Doug Engert (Computing and Telecommunications) presented the IBM 3033 Replacement Acquisition Plan to the Committee. This topic has been discussed at several previous CUG meetings.

The meeting adjourned at 3:42 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD MARCH 8, 1989

Bob Kampwirth (Materials Science) opened the meeting at 11:03 a.m.

David Schulz, University Computers, Hyde Park, Illinois (288-8888), gave a demonstration of the DayStar 33/030 accelerator board for the Apple Macintosh II. The board operates at 33 megahertz and uses a 68030 CPU chip; it provides for Apple Macintosh II operation that is twice as fast as a normal Apple Macintosh II operating at 16 megahertz. The Apple Macintosh II is limited to 16 megahertz because 120 nanosecond RAM is used. The DayStar 33/030 accelerator board overcomes this difficulty by using a 32 kilobyte cache board. The cost with a math coprocessor chip is \$7,000, but is currently \$5,480 at University Computers.

Rick Thome, Aldus Corporation, Naperville Office (961-5999), gave a demonstration of Aldus Persuasion, a new presentation software package for the Apple Macintosh. It competes with existing presentation software such as PowerPoint, Cricket Presents, and More. One has a choice of using the final product to make slides or overheads or to give a show on the Apple Macintosh screen that can be controlled by the mouse--one click to advance a slide, a double click to back up a slide. You can layer individual slides so that you can add points (lines of text) and graphics one at a time. You can automatically advance the slides and loop them back to the start when finished. Other features include (1) auto templates, (2) a spelling checker,

(3) global search and replace, (4) easy transition from outline mode to slide mode, (5) the ability to edit in either mode and have it show up in the other mode, (6) the availability of some drawing tools, (7) the ability to make simple charts or to import charts from other programs, (8) the ability to make organization charts automatically, (9) the ability to easily color slides, and (10) a slide sorter to rearrange slides. Aldus Persuasion lists for \$495.

Eliot Axelrod (Apple's technical representative for Argonne and the University of Chicago) described the new Apple Macintosh IIcx, which uses a 16 megahertz 68030 chip. It is an Apple Macintosh IIx that has the same option for an internal hard drive of 40 or 80 megabytes and an internal Floppy Drive High Density (FDHD) that formats, reads, and writes to 400K, 800K, and 1.2 megabyte Apple Macintosh floppy disks. However, the width of the box under the monitor is less than the Apple Macintosh II and IIx. Specifically, the box width is slightly less than the standard Apple Macintosh II or IIx monitor. To achieve this smaller size, the Apple Macintosh IIcx has only three slots instead of the six slots found in the Apple Macintosh II or IIx. Thus, the Apple Macintosh IIcx has a footprint that is only slightly larger than the original Apple Macintosh. As with the Apple Macintosh IIx, the FDHD for the IIcx can also read and write to MS-DOS (IBM) disks formatted at 720K and 1.44 megabytes and to ProDOS (Apple II) disks.

Eliot Axelrod also talked about two new Apple monitors for the Apple Macintosh II family of computers. The one monitor, called the Apple Macintosh Portrait Display, is a high-resolution 15-inch monochrome monitor that allows one to display a full page of text and graphics. The other monitor, called the Apple Two-Page Monochrome Monitor, has a high-resolution 21-inch monochrome screen that allows one to display two full pages of text and graphics. It also has a built-in tilt-and-swivel stand.

Lee Wagar (Graphic Arts) reported on the new output devices available in Graphic Arts. The QMS color PostScript printer for paper or transparency (8.5-by-11 inch or 11-by-17 inch) works with Adobe Illustrator 88 and Aldus FreeHand. It does not currently work with MacDraw II, Aldus Persuasion, Cricket Presents, or Cricket Graph. The Montage FR1 film recorder for color 35mm slides works with Microsoft PowerPoint, Aldus PageMaker 3.0, Aldus Persuasion, and Cricket Presents. It does not currently work with Adobe Illustrator 88, MacDraw II, or Microsoft Word. Graphic Arts

is preparing samples of color slides and is putting together a slide guide--either how to do your own or to use their output device. If you want to use these devices, call Michele Szawars at extension 2-7062. If you want to tour their shop or have a demonstration of the equipment, call Linda Graf at extension 2-3760. If you have questions, difficulties, or suggestions, call Lee Wagar at extension 2-5603.

The Programmers Special Interest Group normally meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. Call John Mattson (Materials Science) at extension 2-5535 for details.

The Excel Special Interest Group normally meets the fourth Wednesday of each month at 11:00 a.m. in Building 205, Room A-059. However, the next meeting is not planned until the new version of Excel (Version 2.0) is released. Call Ralph Leonard (Chemical Technology) at extension 2-3229 for details.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:15 p.m.

Ralph Leonard, Macintosh Users Group Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD MARCH 9, 1989

Chairperson Bryan Schmidt (Energy and Environmental Systems) opened the meeting at 12:10 p.m.

Rich Nixon (Graphic Arts) reviewed recent personnel changes. Ron Skidmore is now a permanent Customer Service Representative. Victoria Croke, Brian Ende, and Audrey Galvin are new employees in Design and Photography. Mary Jo Thompson is Acting Coordinator of the Customer Services Group; Linda Graf is Acting Coordinator of the Design Group. Beth Paluzzi is an Acting Customer Service Representative Assistant who manages the Photo Library.

Lee Wagar (Graphic Arts) reported on new equipment. A recently acquired QMS color thermal printer is now online. It reads color PostScript files and prints output on 8.5-by-11 inch or 11-by-17 inch paper or transparencies. The printer works with a limited selection of software: Adobe Illustrator 88, Aldus FreeHand, and Mathematica on the Apple Macintosh and Tellagraf and Disspla on the mainframe; MacDraw II, Cricket Presents, and Cricket Graph do not work. Graphic Arts has also installed a Montage FR1 film recorder that produces color 35mm slides from PICT files. Microsoft PowerPoint, Aldus PageMaker 3.0, Aldus Persuasion, Cricket Presents, and Microsoft Word (through SuperGlue) work; Adobe Illustrator 88 does not work. For specific information on equipment capabilities, compatible software, and costs, contact Lee at extension 2-5603 (electronic mail address B20429 at ANLVM). To use these devices, call Michele Szawars at extension 2-7062; to arrange a demonstration, call Linda Graf at extension 2-3760. Also, Graphic Arts has handouts (which will be updated as necessary) on its equipment. In addition, Graphic Arts is assembling samples of color charts and slides and a guide on how to create slides on your own computer and to use Graphic Arts output devices.

Graphic Arts has assigned its Customer Service Representatives (CSRs) to work with particular divisions to improve the transfer of information and the production of documents. If you wish to talk to your CSR or to obtain a list of representatives and their assignments, contact Graphic Arts at extension 2-3740.

June Hamilton (Technical Information Services) reported that the responsibility for most prepress tasks associated with the production of formal reports and technical memoranda has been transferred from Graphic Arts to Technical Information Services. Technical Information Services will be in charge of all matters relating to policy enforcement; Graphic Arts will be responsible for the production of documents. All materials and forms required for printing a document (including the mats) should be put in the Technical Information Services' drop box in Building 316. After Technical Information Services approves the documents, Graphic Arts will pick up the materials. If it is a rush job, Technical Information Services will FAX the approval to Graphic Arts to avoid delay. None of the new arrangements should slow down the processing of documents. Joe Paulini (Graphic Arts) suggested that authors send a copy of the service request to Graphic Arts so that Graphic Arts can schedule the job.

Joyce Kopta (Technical Information Services) distributed a list explaining some of the prepress functions performed by the Technical Information Services staff. They check that a document is legible, neat, and complete; the cover, title page, author, and sponsor designations are correct; the table of contents headings and page numbers agree with those in the text; the references are in order; the format meets the sponsor's requirements, the basic printing specifications, and DOE's basic publication standards; the mailing labels are correct; and the distribution requirements are met. They also do minor proofreading. They charge their time in half-hour increments; an average report of less than 100 pages usually requires one to two hours.

Joe Paulini responded to a question about difficulties with copiers making double-sided copies on 11-by-17 inch paper. A bad batch of Hammermill paper that was distributed throughout the Laboratory wrinkles and causes the machines to jam. Procurement is working on getting better paper. If you are having difficulties, call Joe at extension 2-8162.

Bill Jepsen (Graphic Arts) concluded the meeting with an update on some of the pressroom equipment. Graphic Arts has used the full capability of the collator--stitch, fold, and punch--on only one job so far. This job was a success. He offered a few helpful pointers for the engineering drawing copier in the Quick Copy Center. Although the engineering drawing copier is more expensive than making blueprints, it is faster and more convenient, and the copies are erasable. As a general guideline, the Copy Center is the best option for a small number of copies (less than three or four per original). For a larger number of copies, blueprints are more cost-effective. If clients have immediate needs, Graphic Arts will be happy to accommodate them.

The next Graphic Arts Users Group meeting will be held on Thursday, April 27, 1989 (noon in Building 201, Room 274).

Marita Moniger, Graphic Arts Users Group Secretary

WORKLOAD STATISTICS (JANUARY 31 THROUGH FEBRUARY 27, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,304	1,310	516
Wylbur	1,612	1,627	478
MVS TSO	54	54	2
CICS	1,612	1,627	91
MVS Batch	2,007	2,039	698
VAX/VMS	396	420	200
Cray	309	312	108
All Systems	2,007	2,039	990

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
INTERACTIVE						
CMS	12,465	2,239	1,570	16,274	33,997.5	92.21
Wylbur	9,396	406	522	10,324	9,306.2	13.38
MVS TSO	28	0	0	28	18.2	0.03
CICS	25	0	0	25	0.0	0.98
VAX/VMS	5,941	428	436	6,805	11,510.5	128.74
Cray	128	3	1	132	685.4	0.39
IBM BATCH						
Class U	11,972	2,085	1,505	15,562	n.a.	45.55
Class W	16,494	1,874	1,309	19,677	n.a.	164.96
Class X	7	1,275	91	1,373	n.a.	66.91
Class Y	0	0	431	431	n.a.	15.14
Class Z	0	0	26	26	n.a.	11.21
Nonmain	12,878	1,370	888	15,136	n.a.	0.00
Total	41,351	6,604	4,250	52,205	n.a.	303.77
CRAY BATCH						
u	128	3	1	132	n.a.	0.39
w	1,314	62	27	1,403	n.a.	61.92
x	804	22	22	848	n.a.	14.92
y	2,849	1,490	1,086	5,425	n.a.	263.45
Total	5,095	1,577	1,136	7,808	n.a.	340.68
VMS BATCH						
W BATCH	236	144	66	446	n.a.	11.59
X BATCH	12	20	0	32	n.a.	14.92
Y BATCH	1	6	5	12	n.a.	9.32
Total	249	170	71	490	n.a.	35.83

INPUT/OUTPUT

Lines Printed	
Local	55,987,654
Remote	35,282,044
Fiche	33,538,566
Cards Punched-Local Only	7,239
Tape Mounts	8,587
Microfiche Developed	4,343
Microfiche Frames Developed	737,013

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	130	n.a.
Matrix 35mm Color	30	138
Matrix-8 x 10	2	2
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	9	72
35mm Black/White/Sprocketed	4	28
35mm Color	0	0
16mm Black/White/Sprocketed	3	3,030
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	23,039
New Tapes Saved	961
Tapes Released	1,252
Datasets Exported to Tape	3,107
Datasets Imported from Tape	540

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (JANUARY 31 THROUGH FEBRUARY 27, 1989)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	22	3	10	1	6	1	1
Hrs Unavailable	23.01	3.36	8.10	4.46	6.21	0.41	0.45
MTF/Unscheduled	81.12				108.16	648.98	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	18	3	10		4	1	
Hrs Unavailable	17.28	3.36	8.10		5.40	0.41	
MTF/Unscheduled	44.54				55.67	222.71	
RED IBM 3033							
All Shifts							
Interruptions	7	2	1	1	1	1	1
Hrs Unavailable	9.60	3.20	0.25	4.36	1.58	0.08	0.11
MTF/Unscheduled	220.80				662.40	662.40	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4	1	1		1	1	
Hrs Unavailable	3.03	1.11	0.25		1.58	0.08	
MTF/Unscheduled	118.48				236.96	236.96	

AVAILABILITY STATISTICS, BY SERVICE (JANUARY 31 THROUGH FEBRUARY 27, 1989)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	7	2	1	1	1	1	1
Hrs Unavailable	9.60	3.20	0.25	4.36	1.58	0.08	0.11
MTF/Unscheduled	220.80				662.40	662.40	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4	1	1		1	1	
Hrs Unavailable	3.03	1.11	0.25		1.58	0.08	
MTF/Unscheduled	118.48				236.96	236.96	
NYLBUR							
All Shifts							
Interruptions	23	3	10	1	6	2	1
Hrs Unavailable	23.31	3.51	7.71	4.58	6.36	0.61	0.51
MTF/Unscheduled	72.07				108.11	324.34	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	19	3	10		4	2	
Hrs Unavailable	17.40	3.51	7.71		5.55	0.61	
MTF/Unscheduled	37.10				55.65	111.30	
MVS TSO							
All Shifts							
Interruptions	22	3	10	1	6	1	1
Hrs Unavailable	23.21	3.55	7.71	4.58	6.41	0.43	0.51
MTF/Unscheduled	81.09				108.13	648.78	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	18	3	10		4	1	
Hrs Unavailable	17.30	3.55	7.71		5.60	0.43	
MTF/Unscheduled	44.54				55.67	222.70	
JES3							
All Shifts							
Interruptions	25	3	10	1	6	4	1
Hrs Unavailable	23.48	3.36	8.10	4.46	6.26	0.83	0.45
MTF/Unscheduled	58.95				108.08	162.12	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	20	3	10		4	3	
Hrs Unavailable	17.70	3.36	8.10		5.45	0.78	
MTF/Unscheduled	31.75				55.57	74.10	
CICS							
All Shifts							
Interruptions	5				4	1	
Hrs Unavailable	6.40				5.93	0.46	
MTF/Unscheduled	133.12				166.40	665.60	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5				4	1	
Hrs Unavailable	6.40				5.93	0.46	
MTF/Unscheduled	46.72				58.40	233.60	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	7	1	4			2	
Hrs Unavailable	5.18	1.00	2.80			1.38	
MTF/Unscheduled	333.40					333.40	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7	1	4			2	
Hrs Unavailable	5.18	1.00	2.80			1.38	
MTF/Unscheduled	117.40					117.40	
CRAY							
All Shifts							
Interruptions	18	8	8		1	1	
Hrs Unavailable	23.85	16.80	6.13		0.85	0.06	
MTF/Unscheduled	324.07				648.15	648.15	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10		8		1	1	
Hrs Unavailable	7.05		6.13		0.85	0.06	
MTF/Unscheduled	116.47				232.95	232.95	

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (JANUARY 31 THROUGH FEBRUARY 27, 1989)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	Advanced Photon Source Div	2.3	1.4	0.0	1.7	5.4
272	Advanced Photon Source	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		2.3	1.4	0.0	1.7	5.4
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	Bio, Envir, & Med Res Div	2.4	1.8	0.1	2.6	6.9
149	BEM Div-Ctr for Envir Res	3.4	0.1	0.1	0.8	4.3
174	Ener/Env/Bio Res Prog Dir	1.9	0.0	0.0	0.1	2.0
190	Energy & Envir Syst Div	23.8	10.7	0.9	7.7	43.1
197	Off of Inter Energy Dev Progs	1.1	0.0	0.0	0.2	1.4
246	TIS - Natl Energy Software Ctr	0.2	0.0	0.0	0.9	1.1
274	Ener/Env/Bio Res Prog Adm	0.1	0.0	0.0	0.1	0.2
		---	---	---	---	---
SUBTOTAL		31.3	12.5	1.1	12.4	57.4
ENGINEERING RESEARCH						
102	EBR-II Project-ANL West	2.0	0.0	0.6	0.5	3.1
104	EBR-II Project-Illinois	5.2	0.0	0.0	1.8	7.0
107	Chemical Technology Division	1.9	0.0	0.0	19.1	21.0
112	Reactor Anal & Safety	16.5	0.3	5.2	8.4	30.5
114	Matls & Comp Tech Div	6.9	0.9	0.0	3.2	11.0
115	Engineering Div - Ill	1.2	0.2	0.0	1.3	2.7
116	Applied Physics-Illinois	25.6	2.7	26.5	-3.0	51.7
117	Applied Physics-ANL West	8.1	0.0	13.2	0.4	21.7
118	Reactor Exp & Exam Div	5.5	0.2	0.2	0.9	6.8
119	Analytical Laboratory ANL-West	0.0	0.0	0.0	0.0	0.0
171	Engrg Res Prog Dir	0.0	0.0	0.0	0.1	0.1
178	Fusion Power Program	0.3	0.0	0.0	0.1	0.4
211	Eng Div-Design Eng Dept	0.0	0.0	0.0	2.7	2.7
269	Chem Tech Div-Analytical Chem	0.1	0.0	0.0	0.1	0.2
271	Engrg Res Prog Admin	0.4	0.0	0.0	0.3	0.7
		---	---	---	---	---
SUBTOTAL		73.9	4.3	45.7	35.8	159.7
EXTERNAL						
750	ACK Work Projects	2.2	0.0	0.0	0.6	2.9
751	ACK Work Projects-Dist	0.8	0.0	0.0	0.8	1.7
752		12.2	0.0	0.0	7.2	19.4
753		0.0	0.0	0.0	0.6	0.7
754		0.0	0.0	0.0	0.1	0.2
757		0.4	0.0	0.0	0.7	1.1
760		0.0	0.0	0.0	0.0	0.0
762		0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		15.6	0.0	0.0	10.2	25.8
OPERATIONS						
143	Supp Serv Div - Elec Dept	0.2	0.0	0.0	-0.9	-0.6
148	Human Resources-Health Dept	1.2	0.0	0.0	0.4	1.6
150	Plant Fac & Serv - Spec Matls	0.2	0.0	0.0	0.1	0.2
161	Tech Info Services Dept	1.4	0.0	0.0	2.0	3.4
201	Office of the Director	0.4	0.0	0.0	0.5	0.9
202	Ofc of Chief Oper Ofcr	0.4	0.0	0.0	0.1	0.6
210	Supp Serv Div - Cent Shops	0.2	0.0	0.0	0.1	0.3
216	Support Services Division	0.2	0.0	0.0	0.5	0.7
222	Plant Fac & Serv-Lodging Fac	0.0	0.0	0.0	0.0	0.0
232	Plant Fac & Serv-Security	0.3	0.0	0.0	0.1	0.4
234	Supp Serv Div-OHS-Health Phy	0.2	0.0	0.0	0.1	0.3
235	Supp Serv Div-Env Safe Health	0.8	0.0	0.0	0.2	1.0
236	Plant Fac & Serv-Fire Dept	0.0	0.0	0.0	0.0	0.0
260	Supp Serv Div-Graphic Arts	0.2	0.0	0.0	1.1	1.3
275	Office of Public Affairs	0.6	0.0	0.0	0.1	0.7
276	Ofc Pub Af - Motn Pic Unit	0.1	0.0	0.0	0.0	0.1
296	Telecom Cost/Recovery	0.0	0.0	0.0	0.3	0.3
315	Supp Serv Div-Matls & Serv	2.7	0.0	0.0	0.6	3.3
316	Plant Fac & Serv-Veh Maint	0.0	0.0	0.0	0.1	0.1
317	Plant Fac & Serv-Driv&Rig Ser	0.0	0.0	0.0	0.1	0.1
319	Supp Serv Div-Travel Ofc	0.0	0.0	0.0	0.0	0.0
322	Supp Serv Div-Procurement	0.0	0.0	0.0	0.4	0.5
333	QA, Envir & Safety Ofc	0.2	0.0	0.0	0.1	0.3
336	Supp Serv Div - Inspection	0.0	0.0	0.0	0.0	0.0
400	Ofc of Chief Fin Officer	22.8	0.0	0.0	7.5	30.3
401	Accounting	26.9	0.0	0.0	2.2	29.1
402	Ofc Chief Fin Ofcr-Data Entry	0.0	0.0	0.0	0.1	0.1
403	Budget Office	0.0	0.0	0.0	0.0	0.0
410	Human Resources Department	7.9	0.0	0.0	1.3	9.2
412	Affirm Action Program	0.3	0.0	0.0	0.2	0.4
501	Plant Fac & Serv-Bldg Maint	0.0	0.0	0.0	0.1	0.1
502	Plant Fac & Serv-Installation	0.0	0.0	0.0	0.0	0.0
503	Plant Fac & Serv-Grounds	0.0	0.0	0.0	0.0	0.0
504	Plant Fac & Serv-Custodial	0.0	0.0	0.0	0.0	0.0
505	Plant Fac & Serv-Waste Mgmt O	0.1	0.0	0.0	0.1	0.1
506	Plant Fac & Serv-Plant Mgr of	0.5	0.0	0.0	0.1	0.6
510	Plant Fac & Serv-Utility Syst	0.0	0.0	0.0	0.0	0.0
512	Plant Fac & Serv-Fac Plng/Eng	0.8	0.0	0.0	0.3	1.1
530	Site Mgrs Ofc-ANL West	0.1	0.0	0.0	0.0	0.1
531	Personnel-ANL West	0.1	0.0	0.0	0.0	0.2
532	Special Matls-ANL West	1.2	0.0	0.0	0.3	1.5
533	Accounting-ANL West	0.0	0.0	0.0	0.0	0.0
534	Purchasing-ANL West	0.0	0.0	0.0	0.0	0.0
535	Security - ANL West	0.0	0.0	0.0	0.0	0.1
536	Safety Staff-ANL West	0.2	0.0	0.0	0.0	0.3
537	Information Service-ANL West	0.0	0.0	0.0	0.0	0.0
538	Matls Handling-ANL West	0.1	0.0	0.0	0.0	0.1
550	Computer Appl & Serv - ANL-W	0.3	0.0	0.0	0.0	0.4
551	RAD Monitoring-ANL West	0.0	0.0	0.0	0.0	0.0
554	Machine Shop-ANL West	0.0	0.0	0.0	0.0	0.1
556	Site Engrg-ANL West	0.1	0.0	0.0	0.0	0.1
557	Plant Services-AW-Service Req	0.1	0.0	0.0	0.0	0.2
558	Plant Services-AW-Function	0.0	0.0	0.0	0.0	0.0
559	Food Services - ANL West	0.0	0.0	0.0	0.0	0.0
561	Ofc of Quality Assurance - AW	0.0	0.0	0.0	0.0	0.0
563	Talent Resource Pool-ANL West	0.0	0.0	0.0	0.0	0.0
730	Operating Work Projects	0.0	0.0	0.0	-0.0	-0.0
		---	---	---	---	---
SUBTOTAL		71.0	0.0	0.0	19.1	90.1
PHYSICAL RESEARCH						
105	Materials Science Division	2.7	5.3	2.1	-4.1	5.9
109	Physics Div	3.5	0.4	0.6	2.0	6.5
120	Chemistry Div	1.0	4.6	3.0	-4.5	4.1
136	Int Pulsed Neut Source Prog	0.1	0.0	0.0	0.5	0.7
137	High Energy Physics Div	0.8	1.3	1.8	1.3	5.2
145	Div of Educational Programs	0.7	0.0	0.0	0.1	0.8
245	Mathematics & Computer Sci Di	0.3	0.2	1.7	6.5	8.6
247	Computing & Telecommunications	11.0	0.0	0.0	4.4	15.4
247	CTD - Communications Services	2.6	0.0	0.0	1.6	4.2
273	Physical Research Program Adm	0.1	0.0	0.0	0.1	0.2
		---	---	---	---	---
SUBTOTAL		22.9	11.8	9.3	7.8	51.7
TOTAL		217.0	30.1	56.2	87.0	390.2

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

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COMPUTER-BASED TRAINING COURSES

CTD currently offers 49 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
----------	---

CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CICS Course

CICSPI	CICS Concepts and Facilities
--------	------------------------------

CMS Courses

CMS	Using CMS
REXXAP	REXX Application Programming
XEDIT	Using XEDIT

Cobol Course

COBOL2	VS COBOL II: Making the Transition
--------	------------------------------------

Office System Course

OFFICE	Office System Skills and Concepts
--------	-----------------------------------

PROFS Courses

PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
PGMJCL	JCL for Programmers
MVSUTL	Using IBM Utilities in Application Programming
SORTMRG	Using SORT/MERGE Utilities

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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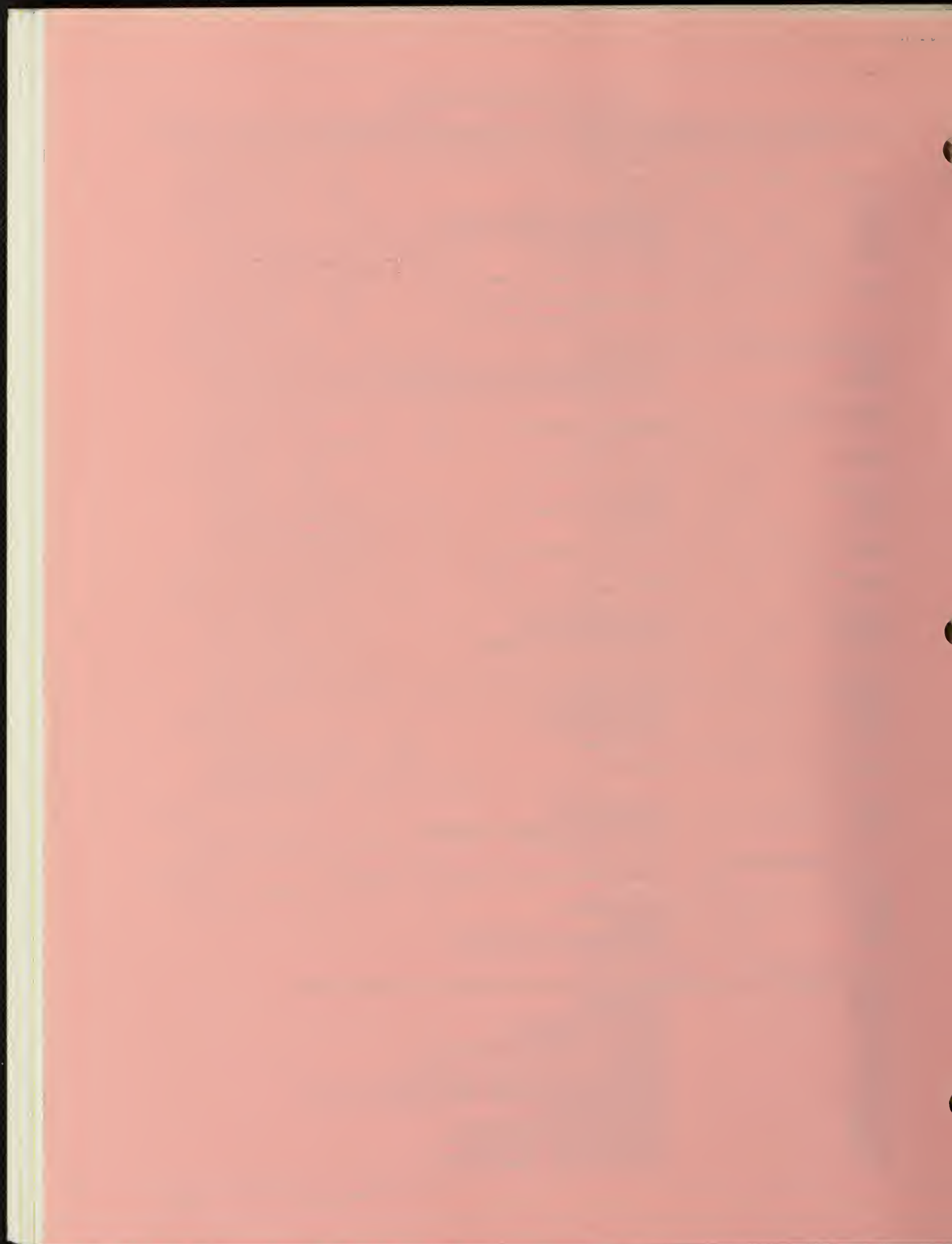
TSO Courses

CLSTPG	CLIST Programming
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQldb2	Using SQL/QMF (DB2): Basic Reporting
SQldb3	Using SQL/QMF (DB2): Advanced Reporting
SQlds2	Using SQL/QMF (DS): Basic Reporting
SQlds3	Using SQL/QMF (DS): Advanced Reporting



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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 20 NUMBER 5 POSITORY MAY 1989

MAY 25 1989

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COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

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Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
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Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
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Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien Hale	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 4.7, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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COMPUTING COMMENTS

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, June 21-23, 1989) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the hypercube, (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Knowledge of Unix and Fortran is strongly recommended. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a \$25.00 charge per person for universities, federal laboratories, and other government organizations and a \$100 charge for commercial organizations.

COMPUTING CLASSES SCHEDULED FOR JUNE 1989

During June 1989, the Computing and Telecommunications Division (CTD) will offer one demonstration and eight classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, and Cray UNICOS and of computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Using VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit MVS and UNICOS batch jobs; and to review MVS and UNICOS batch output.

Introduction to UNICOS (one 2 1/2-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introduc-

tory material on the Unix file system and space management.

Introduction to UNICOS Shell Programming (one 2 1/2-hour session) is for new users who want basic information on Bourne UNICOS shell programming on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Bourne UNICOS shell programming.

Using the Cray X-MP from the MVS Station (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray batch jobs from other ANL computing systems (including CMS and MVS).

Using the Cray X-MP from the VAX/VMS Station (one 3-hour session) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the VAX/VMS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray batch jobs from VAX/VMS).

HIGH-PERFORMANCE COMPUTING SEMINARS

The series of high-performance computing seminars is continuing. Upcoming talks for the month of May are:

George Cybenko, University of Illinois at Urbana
To Be Announced
Thursday, May 11, 1989

Alan Norton, IBM T. J. Watson Research Center
To Be Announced
Thursday, May 18, 1989

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415. The seminar chairman is Jack Dongarra.

CMS NEWS

REVISED CMS NOTE AVAILABLE FOR USER TESTING

In response to user comments and feedback to the March 13, 1989, installation of the current production CMS **NOTE** command, CTD has installed a locally revised CMS **NOTE** command that users can now test. On Monday, May 22, 1989, CTD plans to put this revised **NOTE** command in production.

The revised **NOTE** command corrects the following reported difficulties with the current production **NOTE** command:

1. The actual mail sent does not reflect user changes to the "To" field.
2. A duplicate userid/nodename in the NAMES file may result in an incorrect name in the "To" field.
3. The telephone and address information displayed in the "From" field LONG format is lost.
4. Inappropriate route information is generated in the "To" field.

The locally revised **NOTE** command works as follows:

1. The **NOTE** command with the **LONG** option provides the following information from the NAMES file for both "To" and "From" fields:

```
Name
Telephone Number
User AT node
```

Address information is neither displayed on your screen nor included in mail sent.

2. The **NOTE** command with the **SHORT** option provides the same information as the **LONG** option, except that the name and telephone number will not appear in the "To" field.
3. You can add or change all the fields, and any changes you make to your screen will be preserved in the mail sent. However, with the **SHORT** option, you cannot add the name and telephone number to the "To" field.

4. The actual mail message transmitted looks different from your screen in the following respects:

- a. The name/telephone number field is enclosed in quotation marks ("").
- b. The "user AT node" field appears as <user@node>.
- c. A BITnet node has the .BITNET suffix appended.
- d. The ANLVM node has the .CTD.ANL.GOV suffix appended.

To use the revised **NOTE** command, first enter the command:

TESTNOTE

Then use the **NOTE** command as you usually do.

CTD is considering ways that will conveniently permit users to include postal address and other information with CMS notes. Refer any comments or suggestions to the User Services consultants (CONSULT@ANLVM, extension 2-5405) or to Rich Carlson (B30118@ANLVM, extension 2-7289).

CRAY NEWS

ACQUIRE/FETCH/DISPOSE CB FILE TRANSFER FORMAT REMOVED IN UNICOS 5.0

CTD plans to install the Cray MVS Station Version 3.01 in mid-1989 and UNICOS 5.0 shortly thereafter. To convert to UNICOS 5.0, many UNICOS users will need to make minor changes to the **acquire**, **fetch**, **dispose**, and **uscproute** commands in their Network Queuing System (NQS) batch jobs and UNICOS shell scripts. To assure a smooth conversion, you should now begin to convert your NQS jobs and UNICOS shell scripts now.

In October 1988, UNICOS 4.0 changed the default file format (**-f** option) of the **acquire**, **fetch**, **dispose**, and **uscproute** commands from character blocked format (**-fCB**) to UNICOS data format (**-fUD**). Currently, these file transfer formats affect the way that the **dispose** and **uscproute** commands store Cray files on the

front-end station file systems and the way that the **acquire** and **fetch** commands convert formatted front-end station files for storage on the Cray. Beginning in UNICOS 5.0, the character blocked file format (**-fCB**) will not be permitted at all. Because the appropriate replacement for character blocked format (UNICOS data) is the default file transfer format, most users should simply remove all occurrences of **-fCB** from their **acquire**, **fetch**, **dispose**, and **uscproute** commands. The impact of the UNICOS 5.0 file transfer changes is different for the MVS and VAX/VMS station users. For a discussion of the respective stations, see "File Transfer Considerations for MVS Station Users" and "File Transfer Considerations for VAX/VMS Station Users" in this *Newsletter*.

FILE TRANSFER CONSIDERATIONS FOR MVS STATION USERS

CTD plans to install the Cray MVS Station Version 3.01 in mid-1989. MVS Station Version 3.01 introduces two new considerations when you transfer formatted files through the MVS Station: (1) the treatment of tabs when UNICOS files are transferred to MVS for printing or storage as MVS datasets and (2) the treatment of trailing blanks when MVS datasets are transferred to UNICOS.

1. In MVS Station Version 3.01, the disposition code (**-d** option) of the UNICOS **dispose** and **uscproute** commands controls the treatment of tab characters in UNICOS data (**-fUD**) files you transfer to MVS for printing or storage as MVS datasets. For UNICOS data files, the default disposition code, **-dPR**, will expand tab characters in the UNICOS file to spaces in the MVS dataset or print output; specify disposition code **-dST** if you need to preserve the tabs. The DCB parameters you specify in the **dispose** and **uscproute** command text fields determine all other details of the MVS print output or dataset format. Generally, you should expand tabs to spaces, except perhaps when the final destination of the transferred files is not an IBM compatible system (for example, a VAX in BITnet).

The following example prints the Network Queuing System (NQS) job standard output on the IBM 3800 laser page printer in MVS, with all tab characters expanded to spaces and a 20,000 line print limit. This example accepts the default file transfer format (**-fUD**) and disposition code (**-dPR**).


```
uscproute -mOS \
-t'sysout=a,dest=3800,outlim=20000'
```

The following example saves a UNICOS file *textfile* on MVS permanent disk storage as a variable length record file with all tab characters expanded to spaces. This example accepts the default file transfer format (**-fUD**) and disposition code (**-dPR**).

```
dispose textfile -mOS \
-t"dsname=b12345.my.text,unit=perm,\
disp=(new,catlg),space=(trk,(2,2),rlse),\
dcb=(recfm=vb,lrecl=154,blksize=15440)"
```

You should continue to use transparent data format (**-fTR**), not UNICOS data format, for all files you transfer from UNICOS to MVS disk storage that you intend to process only in UNICOS. The following example transfers a UNICOS file *binfile* to MVS permanent disk storage in transparent format. This example overrides both the default file transfer format and the default disposition code.

```
dispose binfile -mOS -fTR -dST \
-t"dsname=b12345.my.binary,unit=perm,\
disp=(new,catlg),space=(trk,(2,2),rlse),\
dcb=(recfm=vbs,lrecl=4100,blksize=15440)"
```

2. The MVS Station Version 3.01 and Version 2.0 differ in how they treat trailing blanks in MVS datasets that you **acquire** or **fetch** to UNICOS. With MVS Station Version 2.0, when you **acquire** or **fetch** MVS datasets in UNICOS data format (the default), the MVS Station removes trailing blanks from the records of fixed length files. But MVS Station Version 2.0 preserves trailing blanks in variable length files and in all files that you transfer in character blocked format (**-fCB**). Beginning with Version 3.01, the MVS Station will remove trailing blanks from *all* MVS datasets you **acquire** or **fetch** in UNICOS data format and from all NQS batch jobs you submit to UNICOS. Beginning in UNICOS 5.0, character blocked format will be prohibited so that all formatted file transfer to UNICOS will have trailing blanks removed by the MVS Station (see "Acquire/Fetch/Dispose CB File Transfer Format Removed in UNICOS 5.0" in this *Newsletter*).

FILE TRANSFER CONSIDERATIONS FOR VAX/VMS STATION USERS

Beginning in UNICOS 5.0, the *character blocked* ASCII file transfer format (**-fCB**) will be eliminated from UNICOS **acquire**, **fetch**, **dispose**, and **uscproute** commands (see "Acquire/Fetch/Dispose CB File Transfer Format Removed in UNICOS 5.0" in this *Newsletter*). Instead, you must use the default UNICOS data file transfer format (**-fUD**) to exchange ASCII formatted files between UNICOS and the VAX/VMS Station. UNICOS data format is also appropriate for all UNICOS files (ASCII or binary) that you wish to store in VMS but will only process back in UNICOS (after a UNICOS **fetch** or **acquire** command). To ensure an orderly conversion to UNICOS 5.0, eliminate other file transfer formats from your Network Queuing System (NQS) batch jobs and UNICOS shell scripts now.

When you use the **dispose** command or the **uscproute** command to transfer ASCII formatted files from UNICOS to VMS in UNICOS data format (**-fUD**), the VAX/VMS station stores the files in VMS in Stream_LF format. The VMS Stream_LF format may not always be appropriate for the processing you wish to perform on the VAX, and Stream_LF files do not transfer properly over the Laboratory-wide NJE network. When Stream_LF format is inappropriate, append the **/RFM=VAR** qualifier to your **dispose** and **uscproute** VMS file specifications to create standard variable-length VMS files. If the UNICOS files contain Fortran printer carriage control characters, append the **/RAT=FTN** qualifier to your **dispose** and **uscproute** VMS file specifications also. For example:

1. To transfer a UNICOS file to VMS when the Stream_LF default is acceptable:

```
dispose crayfile -mVG -t'vms.file'
```

2. To transfer a UNICOS file that lacks Fortran carriage control to VMS when the Stream_LF default is inappropriate:

```
dispose crayfile -mVG -t'vms.file/RFM=VAR'
```

3. To transfer a UNICOS file that includes Fortran carriage control to VMS when the Stream_LF default is inappropriate:

```
dispose crayfile -mVG \
-t'vms.file\RFM=VAR\RAT=FTN'
```

You need specify the **-mVG** option only when the file transfer command is entered in an NQS batch job or UNICOS interactive session that did not originate through the VAX/VMS Station (ANLVG node). In these cases, the VMS file must be specified by its full DECnet name (including the DECnet nodename, VMS username, and VMS password). See "SSAF Facility Simplifies Front-End Station Access" in the January 1989 *Newsletter* or the addendum to the *DEC VAX/VMS Station Primer for UNICOS (SV-0361)* for a technique to simplify the VMS file specification.

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM UPDATE

If all has gone according to plan, the Office of the Chief Financial Officer (OCF) has reported the Laboratory's April financial position to the Department of Energy from the new Integrated Financial System (IFS). The best way you can find out if IFS is now the production system is by listening to the Current Systems Status Recorded Message at extension 2-5466. CTD updates this recording frequently. If you have further questions, call the IFS Project Team at extension 2-8261 or Management Information Services at extension 2-7156.

If the IFS cutover has been successful, the Project Team will produce the financial reports. All the reports identified by the Financial Reporting Working Group (FRWG) as critical (see Table 1 at the back of this *Newsletter*) should be available by May 8, 1989 (if we reported to DOE on time). Reports identified as high priority (see Table 2 at the back of this *Newsletter*) should be available by May 12, 1989. We will produce other required reports later in May 1989. When the Project Team has produced and checked the reports, they will contact administrative users to arrange for either pick-up or delivery.

If you have questions about the content, accuracy, or format of a report, contact a member of the IFS Project Team at extension 2-8261. If you have financial questions (for example, the cost has been posted incorrectly to an account), contact Cost Accounting at extension 2-6887 or submit an Account Inquiry form and mail it to OCF, Building 201.

If IFS is not the production system, you must continue to use the Financial Management System (FMS) to produce your reports. Users who obtain Uniform Contractor Reporting System (UCRS) forms and plots should continue to use FMS for these functions. CTD will look at other alternatives to using FMS for plots soon.

Progress on all phases of the project will be reported at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

VAX/VMS NEWS

FILE SPACE AND THE DISK QUOTA SYSTEM

This tutorial article describes both the disk volume quota concept of the VAX/VMS system and its role in file space management in the central VAX cluster.

Disk Volume Quotas

In VAX/VMS, each user has one or more top-level directories to store files and to allocate subdirectories. In the central VAX cluster, CTD assigns each user two top-level directories: one for permanent files and one for temporary files, each on a separate physical disk volume. The logical name **SYSSCRATCH** identifies your device and directory for temporary files. The logical name **SYSLGIN** identifies your device and directory for permanent files. Using separate volumes permits CTD to assign different file space quotas; typically, the quota for a permanent file space is smaller than that for temporary space. Concurrent utilization of files on the two volumes may improve I/O performance of certain jobs.

Disk space quotas impose an upper limit to the amount of space that you can allocate for your files on a disk. As you create or delete a file, the system adds to or subtracts from the totals maintained for either your permanent or temporary file space. If while writing a new file, the total will exceed the disk space quota, the system may not let you finish the task. (Some application programs use the quota "overdraft," but many do not.) When this situation occurs, two choices are available: (1) delete some unneeded files with the **PURGE** or **DELETE** commands or (2) obtain a larger quota by contacting

Account Services at extension 2-5425 and requesting an increase. Because of the recent addition of disk capacity to the VAX cluster, you can request a substantial increase to your quota.

To determine your quota values for permanent and temporary file space, enter the command:

```
$ SHOW QUOTA/DISK=logical-name
```

where "logical-name" has the value SYS\$LOGIN for permanent file space or SYS\$SCRATCH for temporary file space. For example, if you enter

```
$ SHOW QUOTA/DISK=SYS$LOGIN
```

the system displays a message of the following form:

```
User [username] has 24035 blocks used, 16925 available, of 40960 authorized and permitted overdraft of 2000 blocks on SYS$LOGIN
```

The system displays the quotas in "blocks"; each block is 512 bytes. Quantities shown for file allocation or use are typically represented in blocks. For example, the command

```
$ DIR/SIZ=ALL
```

displays the name of each file in the default directory and the number of blocks used and allocated to the file, as in the following example:

```
Directory CC245:[username.READER]

DQ.LISTING;1          1/4
PEOPLE.DIR;1          1/4
SUPER.CJOB;1          7/8

Total of 4 files, 9/16 blocks.
```

File space is generally allocated to files in increments of a few blocks (rather than one at a time) for improved performance.

Disk Quotas and Actual Available Space

When you enroll, Account Services assigns your quotas for permanent and temporary disk space. Most users use only a small fraction of their quota; other users need increases in their quotas to meet their needs. As more people use a disk volume, the space on that volume may become overbooked (that is, the total of the assigned space quotas is greater than the capacity of the volume). When there is a large amount of unused space on a volume, overbooking is not a difficulty. CTD monitors disk space consumption and takes meas-

ures to assure adequate availability of space. We do not anticipate shortages of disk space unless the amount of allocated space grows substantially.

The disk use charge rates are the same for both temporary file volumes and permanent file volumes. The charge is applied to "allocated" space only and not to the assigned quota values. The difference between the permanent directory systems and the temporary directory systems is the data retention policy. The system automatically deletes the files in the temporary file directory systems seven days after creation. Users manage the files in their permanent file directory systems. A policy of regular backups protects permanent files from accidental destruction. The same backup procedure also protects temporary files.

NEW CLASS OF VAX DISK STORAGE BEING CONSIDERED

Users have asked for a method of file space management in addition to the permanent and temporary classes that we now have on the VAX cluster. This new class will guarantee that the entire disk space quota is available. Such a scheme ensures that users of this service will always be able to use their entire quota, regardless of the demand for file space. CTD is considering such a service, and interested users or VMS group managers should contact the User Services consultants at extension 2-5405 to let us know their requirements. We will design this new service in collaboration with the first customers.

CERNLIB AVAILABLE ON THE CENTRAL VAX CLUSTER

The VAX/VMS version of the CERN Program Library (CERNLIB) is now available on the central VAX cluster. (CTD is also planning to acquire and install the Cray X/MP version for the UNICOS operating system.) CERNLIB is a collection of mathematical, statistical, and general-purpose routines used frequently by persons involved in nuclear and particle accelerator physics. Many programs are general-purpose and, therefore, are applicable to other areas of science and engineering. This article describes the composition of the program library, how to access it on the central VAX cluster, and how to get more information about its contents.

Currently, CERNLIB is available to non-commercial organizations without license agreements or fees from CERN (the European Organization for Nuclear Research) and has been adapted and is available for many popular computing systems. (Commercial organizations using CERNLIB are charged a small fee.) Therefore, the CERNLIB programs and modules are widely distributed and installed on computers at scientific laboratories; there is a program at CERN to maintain the library. If the library programs meet your needs, then you may benefit from this availability, in comparison with certain proprietary libraries that may not be as easily available. CERN requests an appropriate citation in publications that result from CERNLIB usage.

The contents of the program library have been summarized by categorizing the modules into the following list:

Elementary Functions
 Polynomials and Special Functions
 Integration, Minimization, Non-linear Fitting
 Interpolation, Approximations, Linear Fitting
 Matrices, Vectors, and Linear Equations
 Statistical Analysis and Probability
 Operations Research Techniques and Management
 Science
 Output
 Data Handling
 Debugging
 Quantum Mechanics, Particle Physics
 Random Numbers and General Purpose Utilities
 High Energy Physics, Simulation, Kinematics, Phase
 Space
 Particle Detection, Measurement, Reconstruction
 Statistical Data Analysis and Presentation
 Miscellaneous System-Dependent Facilities

To access the program library and the online HELP documents, enter:

```
$ SETUP CERNLIB
```

To access the online HELP documentation that describes the CERNLIB command, enter:

```
$ HELP @CERNLIB
```

CERNLIB help topic "Program_Library" lists the modules of the program library and their release levels. The topic "CERNLIB" describes the use of the CERNLIB command that you enter to build the library symbol (LIB\$). You use the LIB\$ symbol with the VMS LINK command to link your programs. An example of linking is:

```
$ LINK MYPROG, 'LIB$'
```

The library symbol defines all of the library components that you selected with the CERNLIB command. If you are unsure of what you have selected, enter

```
$ SHOW SYMBOL LIB$
```

to show its current value.

TEX TOOL COLLECTION GOES PRODUCTION

TeX is a text formatting language for creating technical documents containing complex mathematical formulas that is popular with scientists. For the past several months, CTD and several experienced TeX users have been evaluating a new collection of TeX tools on the VAX 8700. (See "New TeX Tools on the VAX 8700" in the February 1989 *Newsletter*.) Our experience is that the new collection provides all the functions and reliability of the previous collection. In addition, this collection provides the following new tools:

- Interactive TeX previewers for the VAXstation, REGIS terminals (VT125, VT241, VT330, etc.), Tektronix 40x0, and other terminals.
- A TeX/LaTeX spell checker.
- TeX postprocessors that generate output for 17 different printers.
- Language Sensitive Editor (LSE) TeX/LaTeX templates. LSE can assist by supplying standard TeX language constructs at a keystroke and by allowing the user to add or change only needed text.

On Monday, May 15, 1989, this collection will become the production TeX tool set. After May 15, 1989, to access this TeX collection on the central VAX cluster, enter the DCL command:

```
$ SETUP TEX
```

To find out how to access the TeX tools, type or print the file TEX_ROOT:[EXE]README.1ST. README.1ST lists both the tools and the documentation available in the tool collection. It also contains a list of all the TeX printer postprocessors.

For more information about TeX, see *The TeX-book* (0-201-13448-9) and *LaTeX User's Guide and*

Reference Manual (0-201-15790-X), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). To see a demonstration of TeX or any of its tools, contact Dave Lifka at extension 2-3251 or Tom Canfield at extension 2-4588.

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

ANL Supplement to the CA-Disspla User's Manual (ANL/TM 467, March 1989) summarizes installation-dependent options and features of the Computer Associates (CA) Disspla graphics package. As the title indicates, this manual supplements the *CA-Disspla User's Manual*. Unless the *Supplement* states otherwise, you should follow instructions in the *CA-Disspla User's Manual* for writing Disspla programs. Information in the *Supplement* applies to Version 10.5 of Disspla (which is currently installed in CMS, in MVS batch, and in several Argonne VAX/VMS systems), to Disspla 11.0 on the VAX 8700, and to Version 10.0 of Disspla (which is currently installed on the Cray X-MP/14 under UNICOS). The *Supplement* supersedes all Disspla information in *Using Cuechart, Tellagraf, and Disspla at ANL* (ANL/TM 433).

CTD Software Library Maintenance Tools for MIS Software (ANL/TM 468, March 1989) describes ANL computing policy for ensuring procedural consistency and systems protection in the design, writing, and modification of program master libraries by the CTD Software Librarian or by Management Information Systems analysts. This manual supersedes *Computing Services Software Library Program Maintenance Tools for Information Systems Section Software* (ANL/TM 443).

Cray Research, Inc. Documents

DEC VAX/VMS Station Ready Reference (SV-0102A) is a quick-reference booklet containing information on Version 4.01 of the DEC VAX/VMS Station (which consists of software that logically links a VAX computer system to a Cray computer system). Specifically, this booklet covers Station commands, ACQUIRE, FETCH, and DISPOSE TEXT field contents, CRAYCP commands, and PAUTH commands.

Other Vendor Documents

The *BMDP Statistical Software Manual* (0-520-06473-9) describes how to use BMDP and includes instructions on the most popular BMDP programs. Chapter 1 provides an introduction to BMDP; Chapter 2 explains data; Chapters 3 through 9 describe the paragraphs that are common to all BMDP programs; Chapter 10 includes convenience features; and Chapter 11 defines batch and interactive operation of BMDP and provides an interactive tutorial. The appendices contain statistical formulas, computational algorithms, specialized applications, descriptions of the datasets used in the program chapters, Fortran subroutines, and a discussion of problem size requirements. This *Manual* supersedes the *BMDP Statistical Software Manual* (0-520-044008-8).

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD APRIL 4, 1989

The chairman, Dotti Bingham (Energy and Environmental Systems), opened the meeting at 3:05 p.m.

Six-Month Status Report on Computing Systems. Mike Boxberger (Computing and Telecommunications) reported on the status of the cost recovery of the CTD computer systems. The recovery on the IBM systems is proceeding well, although the usage is higher than had been predicted. The Cray utilization has been good; but, because of the availability, the priority classes used by the user community have been predominately night and weekend. The VAX utilization began fairly low but has been building to a reasonable level. The recovery from the peripherals is also proceeding well.

Because of the general trend of underrecovery while utilization remains fairly good, it may be necessary to raise the Laboratory indirect recovery percentage. At this time, it appears an increase of about one percent would cover the shortfall. This decision will be made in the future.

Computational Science Research (CSR) Grant Program. Dave Weber (Computing and Telecommunications) reported on the CSR grant program. (See "Computational Science Research Grants Available to ANL Researchers" in the April 1989 *Newsletter*.)

The initial call was issued in March 1989. The reviews and approvals of the Associate Laboratory Directors (ALDs) are going on in early April 1989. One of the stipulations is that 50 percent of the allocated funds are to be used by July 1, 1989. Any funds not used will be lost. The rest of the funds must be used by September 30, 1989.

A question was raised about the early cutoff of the first half, considering the late start some areas have experienced. Dave said this would be taken under consideration.

Status of IBM 3033 Replacement. Dave Weber continued with a discussion of the status of the replacement for the IBM 3033 computers. It is anticipated that the projected 3084 class system would add a \$100,000 increment to the CTD annual cost, beginning in FY1990. The Request for Proposal (RFP) has been sent to Laboratory management for review. It is anticipated that the Laboratory will issue the RFP at the end of April 1989.

IFS Production Cutover in April. Nick Moore (Computing and Telecommunications) discussed the status of the Integrated Financial System (IFS) project. (See "Integrated Financial System Production Cutover Plans" in the April 1989 *Newsletter* and "Integrated Financial System Update" in this *Newsletter*.)

New Mail System Status. Larry Amiot (Computing and Telecommunications) reported on the status of the new mail system. He reviewed the recent changes and additions, giving the motivation and thought process behind each. Many minor difficulties have been fixed.

Recently, there have been other difficulties under investigation. Initial configuration difficulties have been fixed. Many of the current difficulties involve the "TO" field and revolve around the

difference between CMS NOTE and RFC 822 headers. When the user modifies a header under CMS NOTE, these changes are not used in the 822 header. The "TO" field can also generate inappropriate routing information. The RFC 822 style header does not use the telephone and address information used in NOTE's long format; you can use signature files to circumvent this difficulty. Also, if more than one userid/node name exists in a NAMES file, the first one is used. When name service on Sungate is down, the IBM system improperly queues mail. Also, the SENDFILE exec no longer recognizes domain names. Solutions to these difficulties are currently under investigation. Coding changes may be necessary to resolve many of them.

Computing Policy Committee Meeting Report. Dotti Bingaman reported on the Computing Policy Committee (CPC) meeting held on March 14, 1989.

Mike Boxberger presented the Division's General Purpose Equipment (GPE) requirements for FY1990 and FY1991. CTD selects GPE items based on the requests of users, as well as their own evaluation of need. The criteria used for selection are that the equipment (1) complement new Laboratory initiatives, (2) replace obsolete equipment, (3) lower operating costs, or (4) provide new capabilities. In May 1989, Mike will present the list of items to the Computer Users Group for its input. During August 1989, final prioritization of GPE for FY1990 and allocation to Argonne divisions will begin. The CPC recommended that CTD provide a more detailed justification for its proposed GPE purchases. The Committee will continue to review CTD's prioritization of GPE requests.

Dave Weber presented central computing statistics that compared FY1988 and FY1989 usage. He also discussed the CSR grants (see earlier agenda item).

Dave Weber then gave an overview of the future of central computing at Argonne. He displayed a five-year view of DOE computing requirements by major program area; requirements for the defense programs are projected to grow from 4 million normalized service units (NSUs) in FY1989 to 15 million NSUs in FY1994. In contrast, combined requirements for the energy research and nuclear energy programs are projected to increase from approximately 2 1/2 million NSUs to 8 million NSUs for the same period. MFE and FSU centers will meet most of Argonne's projected

supercomputing needs; new scientific workstations will increasingly satisfy non-supercomputing needs. Any expanded role of Argonne central computing in supercomputing is tied to the Center for Energy Research Computation (CERC) initiative.

Dale Koelling (Materials Science) summarized Argonne's use of the MFE Crays during FY1989. We have used 5,628 CRUs (equal to all the capacity of the ANL Cray) but have been granted only one-third of our proposals for time. Argonne has also been allocated 600 CRUs at FSU, not including the High Energy Physics allocation. During FY1989, DOE-HEP will get 75 percent of the available time on the ETA computer at FSU. The proposed Class VII machine will nearly quadruple BES computing resources. Dale feels sure that some version of CERC will be established at a DOE laboratory. The CPC will continue discussion of the Laboratory's long-range plans for computing at its next meeting.

The meeting adjourned at 4:55 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD APRIL 12, 1989

Ron Shepard (Chemistry) opened the meeting at 11:05 a.m.

Eliot Axelrod (Apple's technical representative for Argonne and the University of Chicago) described two new programs for the Apple Macintosh: Disinfectant (a new anti-viral program) and a three-dimensional rendering package. Eliot reported that Disinfectant Version 1.0 is good for getting rid of viruses on the Apple Macintosh. However, it does not guard against getting the viruses. Eliot still recommends that one use Vaccine for that

chore. Both of these programs (although copyrighted) are available from the public domain library of the Macintosh Users Group at Argonne. Disinfectant (1) is very fast (checking Eliot's hard disk in about four minutes), (2) checks specific files or folders, (3) works with all known Apple Macintosh viruses, (4) is documented within the program, and (5) removes any virus that it finds.

Eliot also showed a future three-dimensional rendering package (to be called PhotoFinish) from Enabling Technologies. This program will be sold with Pro3D (an editor for three-dimensional objects) and a lot of clip art. Eliot demonstrated how one could use PhotoFinish to set the attributes of three-dimensional objects (such as transparency, color, reflectivity, surface diffusion, shininess, and smoothness). One can set the background characteristic or environment and can make an object cast a shadow. Most Apple Macintosh output devices should be able to handle the final picture. This feature was not demonstrated. Eliot also talked about other rendering, animation, object editors, and graphic programs that are either available now or are being developed or improved. Lee Wagar (Graphic Arts) reported that they are now able to get color slides from MacDraw II files. The trick is to use the color clipboard command. If you need help, call Lee Wagar at extension 2-5603.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 11:55 a.m.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (FEBRUARY 28 THROUGH MARCH 30, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,310	1,249	540
Wylbur	1,627	1,637	562
MVS TSO	54	54	4
CICS	1,627	1,637	97
MVS Batch	2,039	2,055	715
VAX/VMS	420	425	200
Cray	312	326	100
All Systems	2,039	2,055	1,009

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	15,278	2,489	1,360	19,127	35,979.2	129.24
Wylbur	10,325	360	388	11,073	9,971.3	11.29
MVS TSO	25	0	0	25	32.8	0.02
CICS	25	0	0	25	0.0	1.10
VAX/VMS	21,659	571	423	22,653	13,067.9	100.08
Cray	172	20	3	195	814.1	0.66
IBM BATCH						
Class U	12,594	2,183	1,168	15,945	n.a.	43.76
Class W	18,630	1,982	1,207	21,819	n.a.	170.81
Class X	7	1,063	15	1,085	n.a.	49.85
Class Y	0	0	275	275	n.a.	21.05
Class Z	0	0	9	9	n.a.	1.53
Nonmain	14,302	1,788	678	16,768	n.a.	0.00
Total	45,533	7,016	3,352	55,901	n.a.	287.00
CRAY BATCH						
u	172	20	3	195	n.a.	0.66
w	1,128	65	19	1,212	n.a.	10.60
x	1,987	107	57	2,151	n.a.	32.25
y	3,819	1,327	897	6,043	n.a.	306.11
Total	7,106	1,519	976	9,601	n.a.	349.62
VMS BATCH						
W BATCH	311	191	78	580	n.a.	14.84
X BATCH	0	9	0	9	n.a.	4.02
Y BATCH	1	2	24	27	n.a.	2.94
Total	312	202	102	616	n.a.	21.80

INPUT/OUTPUT

Lines Printed	
Local	65,126,161
Remote	53,738,702
Fiche	34,754,291
Cards Punched-Local Only	9,323
Tape Mounts	9,274
Microfiche Developed	4,641
Microfiche Frames Developed	828,658

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	87	n.a.
Matrix 35mm Color	163	1,092
Matrix-8 x 10	28	28
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	53	468
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	3	53
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	23,145
New Tapes Saved	1,090
Tapes Released	928
Datasets Exported to Tape	4,569
Datasets Imported from Tape	733

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (FEBRUARY 28 THROUGH MARCH 30, 1989)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	17	2	9		2	1	3
Hrs Unavailable	13.80	1.61	7.58		0.73	0.48	3.3
MTF/Unscheduled	121.70				365.10	730.20	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	2	9			1	1
Hrs Unavailable	11.40	1.61	7.58			0.48	1.7
MTF/Unscheduled	132.30					264.60	
RED IBM 3033							
All Shifts							
Interruptions	14	4	7		1	1	1
Hrs Unavailable	12.51	2.76	7.73		0.08	1.51	0.4
MTF/Unscheduled	243.82				731.48	731.48	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	4	7		1		1
Hrs Unavailable	11.00	2.76	7.73		0.08		0.4
MTF/Unscheduled	132.50				265.00		

AVAILABILITY STATISTICS, BY SERVICE (FEBRUARY 28 THROUGH MARCH 30, 1989)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	15	4	8		1	1	1
Hrs Unavailable	12.85	2.76	8.06		0.08	1.51	0.4
MTF/Unscheduled	243.71				731.15	731.15	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	4	8		1		1
Hrs Unavailable	11.33	2.76	8.06		0.08		0.4
MTF/Unscheduled	132.33				264.66		
WYLBUR							
All Shifts							
Interruptions	18	2	9		3	1	3
Hrs Unavailable	15.08	1.76	8.23		0.95	0.61	3.5
MTF/Unscheduled	104.13				242.97	728.91	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	2	9		1	1	1
Hrs Unavailable	12.63	1.76	8.23		0.16	0.61	1.8
MTF/Unscheduled	87.78				263.36	263.36	
MVS TSO							
All Shifts							
Interruptions	17	2	9		2	1	3
Hrs Unavailable	14.91	1.76	8.23		0.78	0.61	3.5
MTF/Unscheduled	121.51				364.54	729.08	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	2	9			1	1
Hrs Unavailable	12.46	1.76	8.23			0.61	1.8
MTF/Unscheduled	131.76					263.53	
JES3							
All Shifts							
Interruptions	17	2	9		2	1	3
Hrs Unavailable	13.88	1.61	7.61		0.78	0.48	3.3
MTF/Unscheduled	121.68				365.05	730.11	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	2	9			1	1
Hrs Unavailable	11.43	1.61	7.61			0.48	1.7
MTF/Unscheduled	132.28					264.56	
CICS							
All Shifts							
Interruptions	2					1	1
Hrs Unavailable	5.21					0.61	4.6
MTF/Unscheduled	369.39					738.78	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2					1	1
Hrs Unavailable	5.21					0.61	4.6
MTF/Unscheduled	135.39					270.78	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	7		5	1	1		
Hrs Unavailable	19.33		7.13	1.50	10.70		
MTF/Unscheduled	724.66				724.66		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6		5	1			
Hrs Unavailable	8.63		7.13	1.50			
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	22	9	8		2	3	
Hrs Unavailable	28.43	19.53	8.01		0.51	0.36	
MTF/Unscheduled	143.11				357.78	238.52	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	11		7		2	2	
Hrs Unavailable	6.83		6.01		0.51	0.30	
MTF/Unscheduled	67.29				134.58	134.58	

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (FEBRUARY 28 THROUGH MARCH 30, 1989)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	Advanced Photon Source Div	4.8	0.9	0.0	1.0	6.7
272	Advanced Photon Source	0.0	0.0	0.0	0.0	0.0
SUBTOTAL		4.8	0.9	0.0	1.0	6.7
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	Bio, Envir, & Med Res Div	2.3	13.7	0.2	-8.8	7.3
149	BEM Div-Ctr for Envir Res	1.8	0.1	0.1	0.8	2.8
174	Env/Env/Bio Res Prog Dir	0.3	0.0	0.0	0.1	0.4
190	Energy & Envir Syst Div	28.1	10.9	1.0	13.7	53.7
197	Off of Inter Energy Dev Progs	0.7	0.0	0.0	0.1	0.8
246	TIS - Natl Energy Software Ctr	0.1	0.0	0.0	1.2	1.3
274	Env/Env/Bio Res Prog Adm	0.2	0.0	0.0	0.1	0.3
SUBTOTAL		33.5	24.7	1.3	7.1	66.6
ENGINEERING RESEARCH						
102	EBR-II Project-ANL West	2.6	0.0	1.7	0.4	4.7
104	EBR-II Project-Illinois	8.4	0.0	0.0	2.7	11.1
107	Chemical Technology Division	2.0	0.3	0.0	27.6	29.9
112	Reactor Anal & Safety	16.7	0.4	4.8	6.8	28.7
114	Matls & Comp Tech Div	6.2	1.9	0.0	3.6	11.8
115	Engineering Div - T11	1.3	0.3	0.0	0.8	2.4
116	Applied Physics-Illinois	29.3	5.5	30.6	11.2	76.6
117	Applied Physics-ANL West	6.3	0.0	8.0	0.4	14.7
118	Reactor Exp & Exam Div	2.4	0.3	0.0	0.8	3.6
119	Analytical Laboratory ANL-West	0.0	0.0	0.0	0.0	0.0
171	Engrg Res Prog Dir	0.0	0.0	0.0	0.1	0.1
178	Fusion Power Program	0.4	0.0	0.0	0.2	0.6
211	Eng Div-Design Eng Dept	0.1	0.0	0.0	2.7	2.7
269	Chem Tech Div-Analytical Chem	0.1	0.0	0.0	0.2	0.3
271	Engrg Res Prog Admin	0.5	0.0	0.0	0.3	0.8
SUBTOTAL		76.3	8.7	45.1	58.0	188.1
EXTERNAL						
750	ACK Work Projects	1.6	0.0	0.1	-2.1	-0.4
751	ACK Work Projects-Dist	0.9	0.0	0.0	0.9	1.7
752		12.2	0.0	0.0	6.3	18.5
753		0.0	0.0	0.0	0.6	0.7
754		0.0	0.0	0.0	0.1	0.2
757		0.4	0.0	0.0	0.7	1.1
760		0.0	0.0	0.6	0.0	0.7
762		0.0	0.0	0.0	0.0	0.0
763		0.0	0.0	0.0	0.0	0.0
SUBTOTAL		15.1	0.0	0.7	6.5	22.4
OPERATIONS						
143	Supp Serv Div - Elec Dept	0.2	0.0	0.0	0.4	0.6
148	Human Resources-Health Dept	1.4	0.0	0.0	0.4	1.8
150	Plant Fac & Serv - Spec Matls	0.2	0.0	0.0	0.1	0.3
161	Tech Info Services Dept	2.2	0.0	0.0	3.5	5.6
201	Office of the Director	0.5	0.0	0.0	0.4	1.0
202	Ofc of Chief Oper Ofcr	0.2	0.0	0.0	0.1	0.3
210	Supp Serv Div - Cent Shops	0.2	0.0	0.0	0.1	0.3
216	Support Services Division	0.2	0.0	0.0	0.1	0.3
222	Plant Fac & Serv-Lodging Fac	0.0	0.0	0.0	0.0	0.0
232	Plant Fac & Serv-Security	0.4	0.0	0.0	0.3	0.7
234	Supp Serv Div-OSR-Health Phy	0.4	0.0	0.0	0.2	0.5
235	Supp Serv Div-Env Safe Health	1.7	0.0	0.0	0.4	2.1
236	Plant Fac & Serv-Fire Dept	0.0	0.0	0.0	0.0	0.0
260	Supp Serv Div-Graphic Arts	0.3	0.0	0.0	1.0	1.3
275	Office of Public Affairs	0.6	0.0	0.0	0.1	0.6
276	Ofc Pub Af - Motn Pic Unit	0.1	0.0	0.0	0.0	0.1
296	Telecom Cost/Recovery	0.0	0.0	0.0	0.3	0.3
315	Supp Serv Div-Matls & Serv	2.9	0.0	0.0	0.9	3.8
316	Plant Fac & Serv-Veh Maint	0.0	0.0	0.0	0.1	0.1
317	Plant Fac & Serv-Driv & Rig Ser	0.1	0.0	0.0	0.1	0.1
319	Supp Serv Div-Travel Ofc	0.2	0.0	0.0	0.0	0.3
322	Supp Serv Div-Procurement	0.0	0.0	0.0	0.1	0.1
333	QA, Envir & Safety Ofc	0.2	0.0	0.0	0.1	0.3
336	Supp Serv Div - Inspection	0.0	0.0	0.0	0.0	0.0
400	Ofc of Chief Fin Officer	48.2	0.0	0.0	8.7	56.9
401	Accounting	0.0	0.0	0.0	0.0	0.0
402	Ofc Chief Fin Ofcr-Data Entry	0.0	0.0	0.0	0.1	0.1
403	Budget Office	0.0	0.0	0.0	0.0	0.0
410	Human Resources Department	9.4	0.0	0.0	1.6	11.0
412	Affirm Action Program	0.1	0.0	0.0	0.2	0.2
501	Plant Fac & Serv-Bldg Maint	0.0	0.0	0.0	0.1	0.1
502	Plant Fac & Serv-Installation	0.0	0.0	0.0	0.0	0.0
503	Plant Fac & Serv-Grounds	0.0	0.0	0.0	0.0	0.0
504	Plant Fac & Serv-Custodial	0.0	0.0	0.0	0.0	0.0
505	Plant Fac & Serv-Waste Mgmt O	0.1	0.0	0.0	0.1	0.1
506	Plant Fac & Serv-Plant Mgr of	0.5	0.0	0.0	0.1	0.7
510	Plant Fac & Serv-Utility Syst	0.0	0.0	0.0	0.0	0.0
512	Plant Fac & Serv-Fac Plng/Eng	0.9	0.0	0.0	0.3	1.2
530	Site Mgrs Ofc-ANL West	0.1	0.0	0.0	0.0	0.2
531	Personnel-ANL West	0.0	0.0	0.0	0.0	0.1
532	Special Matls-ANL West	1.4	0.0	0.0	0.4	1.7
533	Accounting-ANL West	0.0	0.0	0.0	0.0	0.0
534	Purchasing-ANL West	0.0	0.0	0.0	0.0	0.0
535	Security - ANL West	0.0	0.0	0.0	0.0	0.1
536	Safety Staff-ANL West	0.2	0.0	0.0	0.0	0.2
537	Information Service-ANL West	0.0	0.0	0.0	0.0	0.0
538	Matls Handling-ANL West	0.1	0.0	0.0	0.0	0.1
550	Computer Appl & Serv - ANL-W	0.3	0.0	0.0	0.1	0.3
551	RAD Monitoring-ANL West	0.0	0.0	0.0	0.0	0.0
554	Machine Shop-ANL West	0.0	0.0	0.0	0.0	0.1
556	Site Engrg-ANL West	0.1	0.0	0.0	0.0	0.1
557	Plant Services-AW-Service Req	0.1	0.0	0.0	0.0	0.1
558	Plant Services-AW-Function	0.0	0.0	0.0	0.0	0.0
559	Food Services - ANL West	0.0	0.0	0.0	0.0	0.0
561	Ofc of Quality Assurance - AW	0.0	0.0	0.0	0.0	0.0
563	Talent Resource Pool-ANL West	0.0	0.0	0.0	0.0	0.0
SUBTOTAL		73.3	0.0	0.0	21.2	94.6
PHYSICAL RESEARCH						
105	Materials Science Division	2.6	1.8	4.7	2.8	11.8
109	Physics Div	3.4	0.3	0.7	1.4	5.8
120	Chemistry Div	1.2	3.8	0.1	2.0	7.2
136	Int Pulsed Neut Source Prog	0.1	0.2	0.0	0.5	0.8
137	High Energy Physics Div	0.9	2.1	3.1	1.4	7.4
139	Div of Educational Programs	0.9	0.0	0.0	0.3	1.2
145	Mathematics & Computer Sci Di	0.3	0.1	0.3	6.4	7.1
245	Computing & Telecommunications	12.4	0.0	0.0	5.3	17.8
247	CTD - Communications Services	2.4	0.0	0.0	1.9	4.3
273	Physical Research Program Adm	0.1	0.0	0.0	0.1	0.2
SUBTOTAL		24.2	8.3	9.0	22.1	63.5
TOTAL		227.2	42.6	56.0	116.0	441.9

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 31)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

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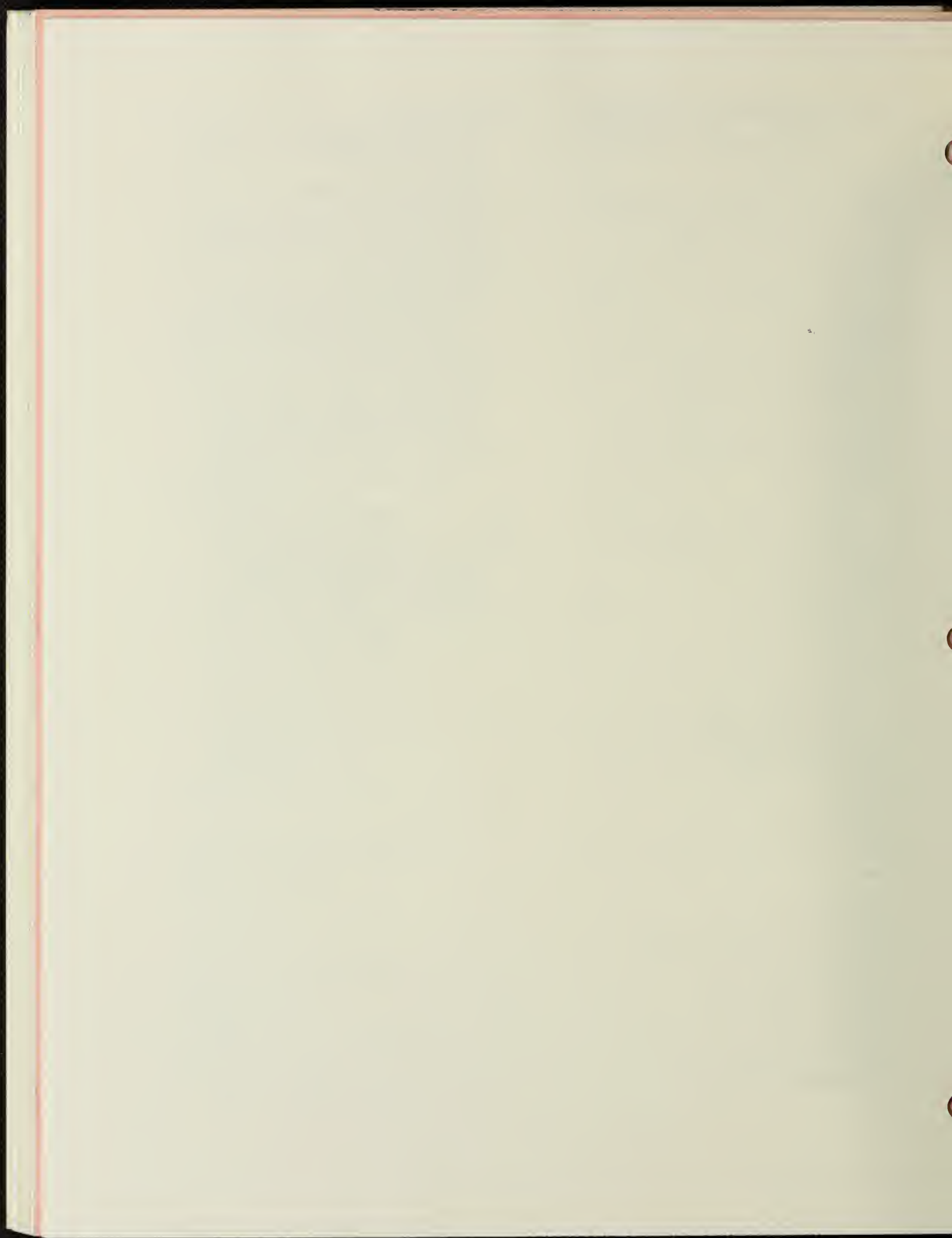
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Argonne National Laboratory
Computing and Telecommunications Division
June 1989

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering one demonstration and eight computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: June 8, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336)
Recommended Documentation for Computer Users at ANL (ANL/TM 379)
Guide to Telecommunications at ANL (ANL/TM 422)

Instructor: Fred Moszur

USING COMPUTER-BASED TRAINING

Goals: To learn how to use computer-based training (CBT) courses in CMS.

Length of Demonstration: One hour

Date and Time: June 14, 1989 (Wednesday), 9:30 a.m. to 10:30 a.m.

Location: Building 221, Room A-261

Instructor: Dave Leibfritz

INTRODUCTION TO VAX/VMS

- Goals: To learn some basic concepts of VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).
- Length of Class: One 3-hour session
- Date and Time: June 14, 1989 (Wednesday), 1:30 p.m. to 4:30 p.m.
- Location: Building 221, Room A-216
- Instructor: Dave Lifka

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

- Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for MVS batch processing. To learn about the MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for batch execution.
- Length of Class: One 3-hour session
- Date and Time: June 15, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
- Location: Building 221, Room A-216
- Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual
- Instructor: Mike Thommes

INTRODUCTION TO UNICOS

- Goals: To learn the basics of the Cray UNICOS file system and space management, as well as basic Unix commands.
- Length of Class: One 2 1/2-hour session
- Date and Time: June 16, 1989 (Friday), 9:30 a.m. to 12:00 noon
- Location: Building 221, Room A-216
- Suggested Reading: *A Practical Guide to UNIX System* (0-8053-8915-6)
UNICOS Primer (SG-2010)
- Instructor: Tom Canfield

USING VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.

Length of Class: One 3-hour session

Date and Time: June 16, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Instructor: Dave Lifka

INTRODUCTION TO UNICOS SHELL PROGRAMMING

Goals: To learn the basics of programming the Bourne Shell in UNICOS.

Length of Class: One 2 1/2-hour session

Date and Time: June 20, 1989 (Tuesday), 9:30 a.m. to 12:00 noon

Location: Building 221, Room A-261

Suggested Reading: *A Practical Guide to UNIX System* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield

USING THE CRAY X-MP FROM THE MVS STATION

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the MVS front-end station so that you can submit Cray jobs from CMS, MVS, and VAX/VMS systems.

Prerequisite: "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.

Length of Class: Two 3-hour sessions

Dates and Times: June 22, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
June 27, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Al Hinds

USING THE CRAY X-MP FROM THE VAX/VMS STATION

- Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing, how to submit work and to manage Cray files from the VAX/VMS front-end station so that you can submit and manage Cray batch jobs, and how to use the Cray station for interactive Cray sessions.
- Prerequisite: "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.
- Length of Class: One 3-hour session
- Date and Time: June 23, 1989 (Friday), 1:30 p.m. to 4:30 p.m.
- Location: Building 221, Room A-261
- Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)
- Instructor: Tom Canfield

COMPUTER-BASED TRAINING COURSES

CTD currently offers 49 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CICS Course

CICSPI	CICS Concepts and Facilities
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CMS Courses

CMS	Using CMS
REXXAP	REXX Application Programming
XEDIT	Using XEDIT

Cobol Course

COBOL2	VS COBOL II: Making the Transition
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Office System Course

OFFICE	Office System Skills and Concepts
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PROFS Courses

PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
PGMJCL	JCL for Programmers
MVSUTL	Using IBM Utilities in Application Programming
SORTMRG	Using SORT/MERGE Utilities

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

CLSTPG	CLIST Programming
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SOLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

If you have questions about the content, accuracy, or format of a report, contact a member of the IFS Project Team at extension 2-8261. If you have financial questions (for example, the cost has been posted incorrectly to an account), contact Cost Accounting at extension 2-6887 or submit an Account Inquiry form and mail it to OCF, Building 201.

Table 1: Critical IFS Reports That the IFS Project Team Will Make Available on May 8, 1989

Report	Title	Default Selection
102-F-01	Detail Charges--Op Cost	Cost Center
102-F-02	Detail Charges--Work Project	Lead Division
102-F-15	Detail Charges--ANL-5	Cost Center
102-F-57	Detail Charges--Task	Task Number
118-A-01	Statement of Project	Lead Division
118-A-02	Combined with 118-A-01	
118-A-12	Combined with 118-A-01	
118-Y-02	Const. Projects--Analysis	All
122-K-01	E A&B Report	Lead Division
153-D-01	Subactivity--Cost Center	Cost Center
153-D-05	Subactivity--B&R	Lead Division
153-D-41	Subactivity--NRC Rpt/Seven Digit	Lead Division
156-G-03	Stat of Oper Cost--Center	Cost Center
156-G-04	Stat of Oper Cost--Group	Center/Group
157-B-01	Cost Versus Budget--Non-Prog	Cost Center
162-E-01	Dist of Effort--Center	Cost Center
162-Y-01	Dist of Effort--Program Manager	ALD Code
162-F-57	Dist of Effort--Task	Task
801-P-01	Cost Versus Budget--Prog-Center	Cost Center
801-P-02	Cost Versus Budget--Prog-B&R	Lead Division

Table 2: High Priority IFS Reports That the IFS Project Team Will Make Available by May 12, 1989

Report	Title	Default Selection
102-F-03	Detail Charges--Op Cost Summary	Cost Center
102-F-06	Detail Charges--Op Cost All Refs	Cost Center
102-F-10	Detail Charges--Op Cost ALD Code	ALD Code
102-F-11	Detail Charges--Op Cost ALD/ANL-7	ALD Code
102-F-21	Procurements to Op Cost	Cost Center
102-F-22	Procurements to Work Project	Lead Division
102-F-31	Service Center Sales--Op Cost	Element
102-F-35	Summary of Charges to Work Project	Element
102-X-20	Operating Cost Ledger	Cost Center
118-B-01	Const Projects by DOE Number	All
130-A-03	Monthly Shop Costs--Cost Code	Cost Center
130-A-04	Monthly Shop Costs--Job	Cost Center
130-A-10	Monthly Shop Costs--Closed Jobs	Cost Center
130-D-01	Operating Statement--Costs	Cost Center
130-D-02	Operating Statement--Hours	Cost Center
131-A-01	Service Center--Time Analysis	Cost Center
131-A-02	Service Center--Labor Charges	Cost Center
131-A-03	Service Center--Labor Charges/Badge	Cost Center
131-A-04	Service Center--Time Analysis/Group	Cost Center
131-A-12	Service Center--Labor Charges/Catalog	Cost Center
133-V-01	Open Service Requests	Cost Center
153-D-02	Subactivity--Cost Center/ANL-5	Lead Division
153-D-04	Subactivity--Prog MGR/ANL-7	Program Manager
153-D-07	Subactivity--Five Digit	Lead Division
153-D-40	Subactivity--NRC Rpt/Five Digit	Lead Division
155-E-01	M/M Summary at B&R	Lead Division
155-E-02	M/M Summary at Cost Center/B&R	Lead Division
155-X-03	Effort & Cost by ALD	ALD Code
155-X-04	Effort & Cost by Cost Center	Lead Division
162-E-02	Dist of Effort--Center/Catalog	Cost Center
162-I-01	Dist of Effort--Center/Five Digit	Cost Center
180-A-01	Travel Detail by Employee	Cost Center
180-A-02	Travel Detail by Category	Cost Center



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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 20

NUMBER 6

JUNE 1989

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Computing Center Classes

DEPOSITORY
JUN 28 1989
UNIVERSITY OF ILLINOIS
CAMPAIGN

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Camaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien Hale	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischer	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 4.7, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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COMPUTING COMMENTS

PLANS TO INSTALL CARTRIDGE TAPE DRIVES FOR CRAY AND IBM SYSTEMS

CTD is evaluating proposals for IBM 3480-type cartridge tape equipment. These new tape controllers and tape drives will eventually replace most of the existing IBM 3420 reel-to-reel tape equipment.

The new cartridge tape equipment will be available to Cray UNICOS, IBM, MVS, and CMS systems. CTD will continue to investigate future methods to enable the VAX 8700 to access cartridge tape drives.

The new cartridge tape equipment and media offer greater reliability, performance, and data storage capacity than the existing tape equipment. Each new cartridge tape is considerably smaller than a 10.5 inch tape reel and stores more data than a reel by recording on eighteen tracks at 38,000 bytes per inch. By using data buffers on the tape controllers, the new cartridge tape subsystems will be capable of communicating with Cray and IBM computers at up to 4.5 million bytes per second. While cartridge tapes currently store slightly more data than the tape reels, we expect the capacity of cartridge tapes to increase substantially.

Initially, CTD plans to install one controller and four cartridge tape drives. Table 1 reflects the tentative upgrade plan for the initial cartridge tape system. Both controllers will have access to all tape drives.

Table 1: Cartridge Tape Upgrade Plan			
Timeframe	Controller	Cartridge Drives	Automatic Cartridge Loaders
FY1989 Q4	1	4	0
FY1990 Q2	1	8	2
FY1990 Q4	2	12	3
FY1991 Q2	2	16	4

CTD will reduce the number of available IBM 3420 10.5-inch tape reel drives as the need diminishes, until a final configuration of four IBM 3420

drives, two dual density 6250 bpi/1600 bpi drives, one dual density 1600 bpi/800 bpi drive, and one seven track drive remain. This configuration will allow users to continue to use data stored on 10.5 inch tape reels at 800 bpi, 1600 bpi, and 6250 bpi densities primarily for data exchange with installations that do not have IBM 3480 type cartridge drives, in addition to allowing access to data archived on 10.5 inch reels at Argonne.

Argonne should select the winning vendor in June 1989, and CTD should install the new IBM 3480-type cartridge equipment within two months of the selection.

ARGONNE CONNECTION MACHINE USER GROUP MEETING

The first Argonne Connection Machine User Group meeting will be held on Wednesday, June 14, 1989, at 2 p.m. in Building 221, Room A-261.

The Connection Machine is a massively parallel computer in the Advanced Computing Research Facility (ACRF). Topics to be discussed will include the status of Connection Machine software and early experiences with linear algebra algorithms for the Connection Machine.

COMPUTING CLASSES SCHEDULED FOR JUNE AND JULY 1989

During June 1989, CTD will offer one demonstration, one seminar, and nine classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, and Cray UNICOS and of computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Using VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit MVS and UNICOS batch jobs; and to review MVS and UNICOS batch output.

Introduction to UNICOS (one 2 1/2-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system and space management.

Introduction to UNICOS Shell Programming (one 2 1/2-hour session) is for new users who want basic information on Bourne UNICOS shell programming on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Bourne UNICOS shell programming.

Using the Cray X-MP from the MVS Station (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray batch jobs from other ANL computing systems (including CMS and MVS).

Using the Cray X-MP from the VAX/VMS Station (one 3-hour session) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the VAX/VMS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray batch jobs from VAX/VMS).

UNICOS 5.0--"What's Different" (one 2-hour seminar) is for current UNICOS 4.0 users who want to learn about the new features and changes in UNICOS 5.0.

Using CMS on IBM 3270-Compatible Display Terminals (two 3-hour sessions) is for CMS users on an IBM 3270-compatible display terminal or on a line-oriented terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail, who organize information in files and obtain information from files, who create and modify data, programs, or text files, or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

CRAY NEWS

CONVERSION SCHEDULE FOR UNICOS 5.0

CTD is preparing to install the UNICOS 5.0 operating system on the Cray X-MP/14. UNICOS 5.0 is a major software release which provides new capabilities for several functional areas. Initially many of these new features will be disabled to provide a smoother transition for users from UNICOS 4.0 to 5.0.

CTD tentatively plans to install UNICOS 5.0 on Monday July 10, 1989, at 7:00 a.m. for a 24-hour user test. On Tuesday, July 11, 1989 at 7:00 a.m., CTD will purge from the batch queue all jobs that have not run, restart UNICOS 4.0, and evaluate the previous day's test. If there are no major difficulties with UNICOS 5.0, it will become the production Cray operating system on Monday July 17, 1989, at 7:00 a.m.

Some user-level differences between UNICOS 4.0 and 5.0 may affect the execution of existing jobs. Computing and Telecommunications will hold a brief UNICOS 5.0--"What's Different" seminar to assist the Cray users with changing to UNICOS 5.0. See the schedule at the back of this *Newsletter*.

As CTD gains experience in UNICOS 5.0, we will enable new features and announce them in future *Newsletter* articles. CTD will test the viability of the UNICOS 5.0 fair share scheduler and plans to use UNICOS 5.0 interfaces to the UCC-I tape management system and to the UNIX Network File System (NFS).

GRAPHICS NEWS

DISSPLA VERSION 11.0 GOES PRODUCTION ON THE VAX 8700

On Tuesday, June 13, 1989, Disspla 11.0 will replace Disspla 10.5 as the production library on the central VAX computer. If you are testing Disspla 11.0, you will no longer need to run SETUP to use the Version 11.0 libraries.

Disspla 11.0 contains the following features and additions:

- New graphic capabilities
- A VMS HELP library
- A Disspla sharable image
- A Fortran 66 version of the Disspla 11.0 library (a Fortran 77 Version of the Disspla library is the default)

See the article "Disspla Version 11.0 Installed on the VAX 8700" in the April, 1989, issue of the *Argonne Computing Newsletter* for additional usage information.

Disspla version 10.5 will still be available for a short period of time through the SETUP function. To access version 10.5, enter the DCL command:

```
$ SETUP DISSPLA /V=10p5
```

Version 10.5 will remain on the 8700 for approximately one month.

To become familiar with Disspla, consult the "Primer" chapter in Volume 1 of the *CA-Disspla User Manual*, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail by (calling extension 2-5405 and requesting a copy).

MANAGEMENT INFORMATION SYSTEMS

3COM LOCAL AREA NETWORK MULTIUSER APPLICATION DEVELOPED

Management Information Systems (MIS) of CTD has developed and implemented a 3Com Local Area Network administrative application--the Circuit Information System. MIS developed this multiple user, multiple database application system for CTD's Telephone Services Section. It is written in the DBase III+ programming language using native DBase databases. The DBase programs were compiled with the Clipper compiler to provide very efficient and fast running application modules that allow for quick access to the databases.

The Circuit Information System stores the main databases on a central 3Com file server and enables five employees to view and update information from IBM personal computers attached to the Building 221 local area network.

The system is menu driven and has six databases, six inquiry/update screens, twenty-two standard reports, and an online HELP facility. MIS wrote 52 programs for the system and incorporated 32 modules of the MIS Dictionary and Development System (DDS). The DDS is a set of reusable code that forms the nucleus of the PC-based system and provides many of the common application components (such as online HELP, light bar menus, redirecting report output, backup/recovery, and index reorganization).

The Circuit Information System is a medium sized PC application in terms of the number of programs contained in the system. It provides for sharing of databases from distributed personal computers for better management of Private Branch Exchange (PBX) circuit information.

MIS provides DBase expertise and may be contacted at extension 2-7156 if further information or assistance is desired in developing network applications.

INTEGRATED FINANCIAL SYSTEM USED FOR DOE REPORTING

On Friday May 5th, 1989, the Chief Financial Officer reported on the ANL financial position to the Department of Energy using the Integrated Financial System (IFS), the laboratory's new financial system. The IFS Project Team will continue to produce the financial reports needed by users for the next few months to monitor the implementation (see "Integrated Financial System Update" in the May 1989 issue of the *Newsletter*).

The IFS, as with other new system implementations, will undergo a period of stabilization and tuning that will continue through the end of this fiscal year. Progress on all phases of the project will be reported in the *Argonne Computing Newsletter* and at FACET meetings held on the second Tuesday of each month in Building 292, Room B-169, from 1:30 p.m. to 3:00 p.m.

TELECOMMUNICATIONS NEWS

X.25 SERVICE UPGRADED

CTD has upgraded X.25 service to the central Argonne computers. The new X.25 service will allow users to operate their terminals at speeds from 300 to 19,200 bits per second (bps) onsite, and from 1200 to 2400 bps offsite. CICS, CMS, Wylbur, and TSO interactive users will now dial 2-2525 exclusively for onsite X.25 access and 972-2525 for off-site access.

CTD has installed a second Digital Communications Associates Incorporated X.25 Packet Assembler Disassembler (PAD) to replace the three single speed, 9,600 bps Dynapac PADs that were accessed by extension 2-2525. After dialing extension 2-2525, users must type multiple carriage

returns for the X.25 PAD to determine the session speed. The Argonne banner will appear once the link is established.

CTD is discontinuing extension 2-2588 formerly used to access X.25 between 300 and 19,200 bps.

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,730 computers at over 980 sites. Since the last *Newsletter* article in April 1989, the following universities and organizations have joined BITnet:

Academica Sinica--Taiwan
Butler University
CICRC--Paris
COGEFO--Milano
DePauw University
Dokkyo University
Emerson College
European Center for Medium Range Weather Forecasting
European Laboratory for Non-Linear Spectroscopy--Firenze
European University Institute--Firenze
Federal University--Rio de Janeiro
FOM Institute for Atomic and Molecular Physics--Amsterdam
Foundation for Research and Technology Hellas--Heraklion
Furman University
Gonzaga University
Higher School of Commerce--Paris
Hiram College
INHA University--Korea
Italian Center for Aerospace Research--Naples
Morgan State University
National Commission for Research in Nuclear Energy and Alternatives--Bologna
National Commission for Research in Nuclear Energy and Alternatives--Rome
Ochanomizu University
Pitzer College
Rikkyo University
Rush University

Saint Joseph College--West Hartford, Connecticut
 Sendai Junior College of Technology
 Springer-Verlag--Heidelberg
 State University of New York Agricultural and
 Technical College at Morrisville
 State University of New York Health and Science
 Center at Syracuse
 Superconducting Supercollider Network System
 Toyama University
 University of Alabama--Huntsville
 EKEFE-Demokritos--Athens
 University of North Dakota
 University of Occupational and Environmental
 Health--Japan
 University of Sassari
 University of Thessaloniki

For a complete list of organizations in the BIT-net network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

HELP BITNET NODES

VAX/VMS NEWS

VMS VERSION 5 UPGRADE PLAN

On Saturday, June 17, 1989, CTD will begin to upgrade the operating system of the central VAX cluster to Version 5.1-1 of VMS. This upgrade will provide many new features for VAX cluster users, which will be described in a future *Newsletter*. CTD had deferred the upgrade until now to accommodate users of major applications software that has only recently been certified for VMS Version 5 (see "Central VAX Cluster Upgrade to VMS 5.0 Deferred" in the November 1988 *Newsletter*).

On Saturday, June 17, 1989, beginning at 8:30 a.m., the central VAX 8700 computer, the VAX 750 MFEnet gateway, and the VAX 8250 Supercomputer Gateway will be unavailable until approximately noon, while CTD installs the upgrade. For changes in this schedule, refer to the Current System Status Recorded Message (extension 2-5466). Users should be able to logon to the VAX 8700 starting Saturday afternoon anytime during the remainder of the weekend to test their applications with VMS 5.1. When the VAX 8700 becomes available Saturday afternoon, we encourage users to logon and test their applications throughout the weekend.

If weekend testing reveals difficulties with major software systems, we will return to VMS Version 4.7 (the current version). If weekend testing reveals no major difficulties, VMS 5.1-1 will be available for additional user testing on Monday, June 19, 1989. CTD encourages VAX 8700 users to continue testing applications on Monday, June 19, 1989. Please report difficulties to the User Services consultants (extension 2-5405). Barring unanticipated difficulties, VMS Version 5.1-1 will be in production on Tuesday, June 20, 1989.

VAX CLUSTER DISK QUOTA VALUES INCREASED

Recently, CTD acquired additional disk volumes for the central VAX cluster. With this new availability of file space, we are now increasing the default disk quota values assigned to new and existing accounts. At the same time, we are increasing the disk quota value assignments of current accounts.

For permanent files, we have increased the default disk quota values to 81,920 blocks from 40,960 blocks for new and existing VMS accounts. We have not revised quotas for accounts with less than 40,960 blocks or greater than or equal to 81,920 blocks.

For temporary files, we have increased the default quota values to 500,000 blocks from 250,000 blocks for new and existing VMS accounts. We have not revised quotas for accounts with less than 250,000 blocks or greater than or equal to 500,000 blocks.

To revise default quota values for your VAX 8700 account, contact Account Services at extension 2-5425.

ANSYS ROYALTY CHARGES DECREASED ON THE VAX 8700

When VAX users use the ANSYS finite element modeling program on the central VAX 8700 computer, CTD collects a vendor-required royalty fee in addition to the standard CTD rates. ANL forwards the amount collected (not less than the required minimum monthly fee) to Swanson Analysis Systems Incorporated in accordance with the ANSYS license agreement. Previously, to help meet the required monthly minimum fee, CTD collected up to \$0.20 per CPU second from ANSYS users (see February 1989 issue of the *Newsletter*).

The Advanced Photon Source Division recently acquired a second copy of ANSYS that is licensed for VAX/VMS systems. This acquisition will benefit VAX 8700 users by enabling CTD to collect the minimum usage fee required by Swanson Analysis System Incorporated, which is \$0.034 per CPU second. CTD will now discontinue the practice of charging a variable rate up to \$0.20 per CPU second to cover the required minimum monthly fee.

INTERGRAPH 200 CAE SYSTEM UPGRADED

On April 17, 1989, CTD upgraded the Computer-Aided Engineering (CAE) software of the Intergraph 200 design workstation host computer in Building 221. The Intergraph 200 is a customized MicroVAX II that provides file and computation services for Intergraph design workstations in Building 207, Building 208, and at Argonne-West. Software upgrades supplied by Intergraph Corporation are the VAX/VMS operating system (Version 5.0-2), new Intergraph host-based applications, and new software for Argonne workstations that run Unix System V to provide the Intergraph design station emulation function. CTD added new Intergraph mechanical design software (omitted from the initial software delivery) to the system approximately one week later.

Current Intergraph users include Engineering Physics (EP), Plant Facilities & Services (PFS), and Argonne West. Contact Bob Amber, Engineering Physics (EP), at extension 2-6739 for more information on the Intergraph upgrade.

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

A March 1989 addendum to the *DEC VAX/VMS Station Primer for UNICOS* (SV-0361) summarizes the local VAX/VMS Station implementation options, corrects errors in the primer, and adds planning information for UNICOS version 5.0.

A March addendum to the *SAS/Graph User's Guide*, Version 5 Edition (0-917382-68-4) summarizes the installation-dependent options of SAS/Graph and points out features and commands described in the *SAS/Graph User's Guide* that are unavailable in our current implementation.

An April addendum to *VM/System CMS Primer* (Release 6) summarizes the installation-dependent features of the local Argonne VM/SP enhancements available to Argonne users.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD MAY 2, 1989

The chairman, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:05 p.m.

General Purpose Equipment (GPE) Funds. Mike Boxberger (Computing and Telecommunications) reported on the 1990-1991 proposals for GPE funds requests for CTD. These will be reviewed again in August 1989 and final disbursements will be made in October 1989.

In the FY1989, the priority items included the cartridge tape system, the IBM subsystem disks, and a new communications controller. The current priority list for 1990-1991 includes a digital image storage and editing system, distributed computing workstations, a Sun NFS processor and storage, a DECnet 2000 router, more memory and a tape drive for the VAX 8700, a T1 tester, a scientific visualization laboratory, phase II of the tape cartridge system, a data interface for a fiber optic Ethernet local area network (LAN), a VAX video storage system, and the IBM 3033 replacement. These items amount to 1.4 million dollars.

IBM Replacement Update. Jerry Davison (Computing and Telecommunications) gave the latest schedule for the IBM Replacement Project. The current schedule leads to the installation of a replacement about January 30, 1990, with the IBM

3033 removal about March 8, 1990. The Request for Proposal (RPF) for the 3084Q class computer should go out about June 8, 1989, with contracts awarded in November 1989.

Integrated Financial System (IFS) Update.

Bob Fisher (Computing and Telecommunications) discussed the current status of the IFS checkout and conversion. Parallel closes were being carried out for April 1989, with good results so far. The final evaluation will take place on May 4, 1989, from Thursday through Monday, the project personnel will produce the primary financial reports for the divisions, which will review with them. The secondary reports will be generated thereafter. The FMS system will still be used to produce the plotted output. To date, things are looking good.

Cray Utilization. Joe Midlock (Computing and Telecommunications) reported the latest Cray utilization. April 1989 utilization was down slightly from March 1989 while income was up slightly.

Questions were raised about the status of the system over the past weekend when higher priority jobs seemed to be unable to get into the system even though qstat showed only lower priority jobs were present. Lower priority jobs are supposed to be swapped out at the end of their time slice and higher priority jobs brought into the system. If users experience this type of behavior, they should take a qstat and let the computer center know so the trouble can be checked.

Graphic Arts PostScript Output Devices.

Lee Wagar (Graphic Arts) reported on the latest output devices available at Graphic Arts. Besides the typesetter, there is now a color thermal printer that can produce paper and transparency output from files following the Adobe color PostScript format in sizes of 8.5-by-11 or 11-by-17 inches. In addition, there are two non-PostScript slide output devices that can be used through the Apple Macintosh at Graphic Arts: a Montage FR1 and a Matrix SlideWriter. On order is a PostScript printer capable of producing 11-by-17 output.

Graphic Arts is trying to obtain communications equipment that will allow direct sending of output without having to call Graphic Arts first. These will also allow a non-destructive read that will allow better quality control. The current Remote Access Data Station (RADS) setup does a destructive read so a rerun can not be done if there is a difficulty.

Electronic Mail System Status. Rich Carlson (Computing and Telecommunications) discussed several corrections made recently to fix difficulties in the mail system. Several corrections reside in the test NOTE.

Some of the difficulties still awaiting resolution include (1) the improper queuing mail when the SUNGATE nameserver is down, (2) mailers not supporting acknowledgements, (3) mixed NETOG destination/origination messages, (4) SENDFILE not being able to use domain names, and (5) user names with imbedded pound sign (#) being truncated. As fixes become available, they will be implemented.

Computing Policy Committee (CPC) Meeting Report.

Dotti Bingaman (Energy and Environmental Systems) reported on the Committee meeting held on April 28, 1989. Dave Weber (Computing and Telecommunications) talked about the central computing machine usage (see earlier agenda item). Mike Boxberger (Computing and Telecommunications) reported on the status of the Computational Science Research grants. Within the past few weeks, no-charge accounts amounting to full allocation have been granted to users in the Physical Research and Energy, Environmental, and Biological Research areas of the Laboratory. As of April 24, 1989, only \$1,216 of the \$397,000 allocated had been spent. Cy Adams (Engineering Physics) will check to see why the Engineering Research proposals have not been submitted. Larry Price (High Energy Physics) reported on networking activities. The VAX Managers and the CPC Networking Subcommittee have discussed the possibility of replacing the Argonne-written Network Job Entry (NJE) protocol with a commercial package called JNET. After reviewing both systems, a joint committee was set up to study the question of heterogeneous networking at ANL for VAXes; its initial report is expected within a month. A technical review of ESNET (held in March, 1989), was highly critical. The reviewers recommended major changes be made before proceeding with implementation. The initial National Network Testbed T1 lines, which should be available in one to two months, are no longer routed through Argonne. We must push to be sure that Argonne is included again. Because of equipment failure, a demonstration and report on Scientific Visualization was postponed until the next CPC meeting. Dave Weber then discussed the future of central computing at Argonne. We have pricing policies that discourage usage. Other laboratories, (such as Brookhaven and IBM Watson), fund in a manner similar to our

floors concept, but then there is a difficulty with allocation of the resources. If distributed computing continues to grow, networking becomes even more important and must be funded appropriately. Also, the problem of requiring that your own scientific staff members be computer hardware and software experts must be addressed. The CPC will continue this discussion at its next meeting.

The meeting adjourned at 4:15 p.m.

Kcn Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD APRIL 27, 1989

Chairperson Bryan Schmidt (Energy and Environmental Systems) opened the meeting at 12:10 p.m.

Lee Wagar (Graphic Arts) reported on the new equipment in Graphic Arts. Graphic Arts installed a new, faster raster image processor for use with the typesetter; a matrix film recorder; and a laser printer that will print 11-by-17 inch sheets should be delivered in May 1989. CTD is now testing AlisaTalk software that resides on the VAX cluster. This software should simplify the printing of PostScript files being sent by various users in the Laboratory to Graphic Arts. It will replace the Remote Access Data Station (RADS) that is now used to run PostScript output devices. Lee also provided an update on the Graphic Arts Apple Macintosh-based computer graphics system. Graphic Arts now has three Macintosh-based software packages that are primarily for presentations: Persuasion, PowerPoint, and Cricket Presents. Persuasion has produced the best results. Graphic Arts personnel are also experimenting with Quark Express, a page layout program considered more powerful than PageMaker. Graphic Arts recently purchased a Kinetics box that connects the LocalTalk network to the Laboratory-wide Ethernet network. Finally, Graphic Arts is investigating a way to make documents produced on a Macintosh-based system use the Standard Generalized Markup Language (SGML), which is part of the Computer-Aided Acquisition Logistics and Support (CALS) standard being enforced by the Department of Defense.

Rich Nixon (Graphic Arts) responded to several questions related to various Graphic Arts services. The new arrangement in which Technical Information Services has taken responsibility for prepress activities seems to be working smoothly,

with no delays or missed deadlines. The *Graphic Arts Users' Guide* is almost complete and should be distributed this spring. Although backup services have been adequate for the jobs that have been coming through Graphic Arts, Rich did advise users to allow more lead-time for complicated or unusual documents, work that requires translation from a word processing or typesetting language onto a Macintosh language (which has not been done yet), or jobs that necessitate using any of the new equipment in Graphic Arts.

Some general patterns have emerged in the workload at Graphic Arts over the last few years. There have been more printing and binding jobs and fewer prepress jobs (such as preparing Photo-mechanical transfers (PMTs) or halftones). Graphic Arts has produced more photographs, slides, and presentation materials, especially those requiring creative designs and using color. The turnaround time for producing slides has been much quicker. Graphic Arts has also been doing more work for others (such as DOE headquarters, Fermi, and Battelle).

Rich advised customers to call Graphic Arts if they ever discover a great difference between the amount that was estimated for a job and the amount actually billed. Sometimes a simple data entry error is responsible. Certainly, if the scope of a job changes at all, the cost will be affected, and customers should call Graphic Arts and renegotiate the price.

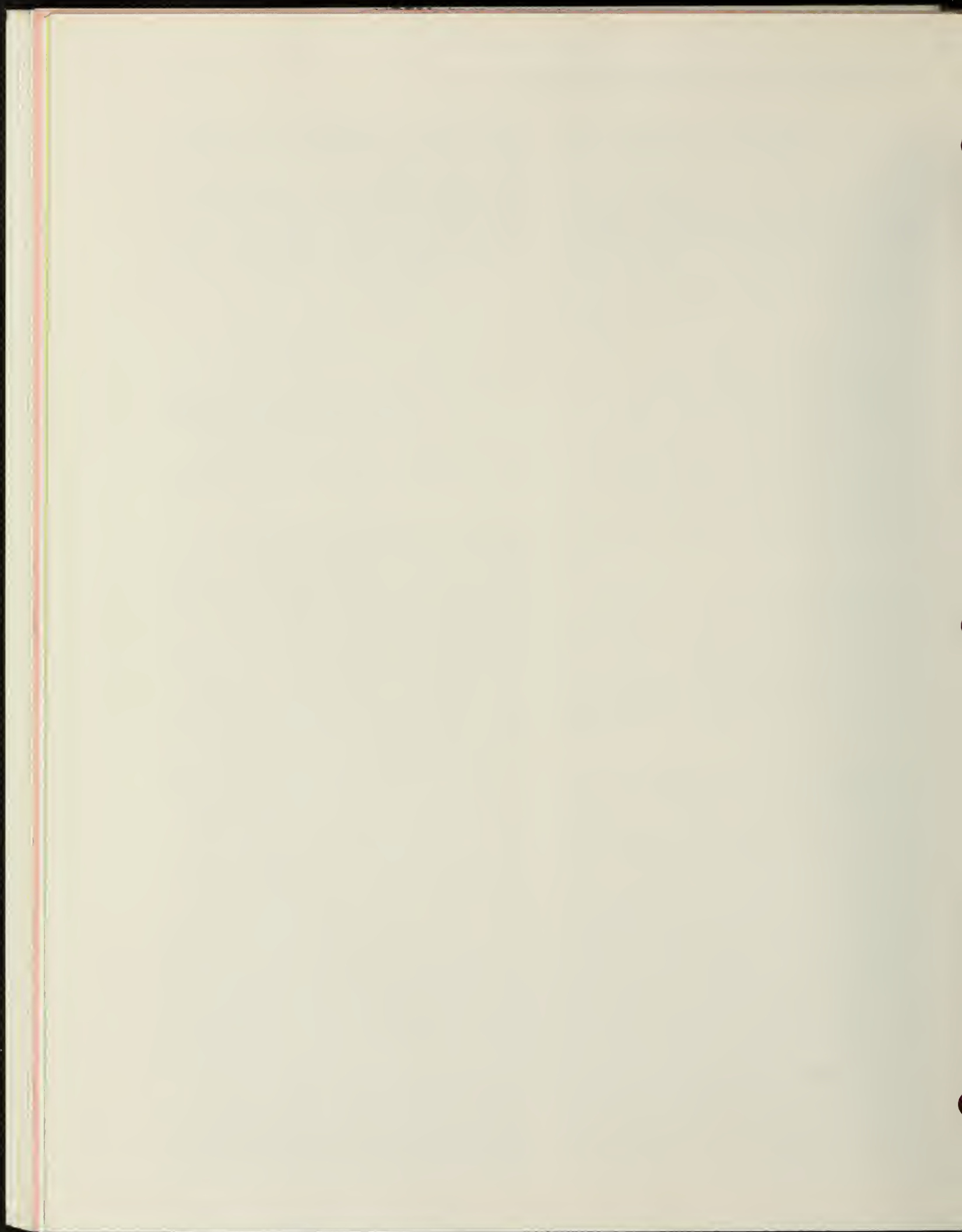
Mary Warren (Energy and Environmental Systems) gave a presentation on a program she did for the Pacific Basin Conference on Hazardous Waste. The program contained schedules, instructions, lists and descriptions of participants and papers, and other information that users had to be able to easily find. Mary used consistent design elements to keep the program easy to follow. To keep each day's activities separate, she varied the format somewhat from page to page (for example, from two to three columns). She recommended using this technique rather than using different type sizes, which can make a document difficult to read. On the last page of the program, she provided a list of participants that included an abbreviated code to correlate each person's name with the time he was presenting his paper. Frequently many items in a program are subject to last-minute changes (for example, participants will call with changes in the times and titles of their papers). Thus, even though the printed program might have some errors, Mary advised establishing a firm cutoff date for accepting these changes.

es. To allow the maximum amount of time for these changes, she paid the premium for a rush printing job.

Graphic Arts will demonstrate new equipment at the next meeting to be held on Thursday, July 13, 1989, at noon. We will meet in the lobby of Build-

ing 222. There is no meeting room scheduled; please schedule your lunch before or after the meeting.

Marita Moniger, Graphic Arts Users Group Secretary



WORKLOAD STATISTICS (MARCH 31 THROUGH APRIL 27, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,249	1,255	482
Wylbur	1,637	1,655	461
MVS TSO	54	54	4
CICS	1,637	1,655	90
MVS Batch	2,055	2,081	658
VAX/VMS	425	410	191
Cray	326	347	108
All Systems	2,055	2,081	932

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	11,882	2,246	1,285	15,413	31,866.3	90.68
Wylbur	8,530	341	329	9,200	8,063.2	9.39
MVS TSO	25	0	0	25	18.6	0.02
CICS	22	0	0	22	0.0	0.91
VAX/VMS	34,254	714	453	35,421	8,914.0	120.50
Cray	77	3	30	110	640.8	0.94
IBM BATCH						
Class U	10,256	1,896	1,273	13,425	n.a.	37.68
Class W	15,979	1,853	758	18,590	n.a.	133.05
Class X	0	1,231	51	1,282	n.a.	62.54
Class Y	0	0	236	236	n.a.	24.78
Class Z	0	0	0	0	n.a.	0.00
Nonmain	12,745	1,609	728	15,082	n.a.	0.00
Total	38,980	6,589	3,046	48,615	n.a.	258.05
CRAY BATCH						
u	77	3	30	110	n.a.	0.94
w	1,187	77	59	1,323	n.a.	15.68
x	1,635	98	122	1,855	n.a.	65.40
y	2,856	712	347	3,915	n.a.	251.02
Total	5,755	890	558	7,203	n.a.	333.04
VMS BATCH						
W BATCH	984	201	84	1,269	n.a.	28.44
X BATCH	13	27	2	42	n.a.	29.55
Y BATCH	1	3	5	9	n.a.	3.78
Total	998	231	91	1,320	n.a.	61.77

INPUT/OUTPUT

Lines Printed	54,671,017
Local	42,707,533
Remote	29,067,276
Fiche	15,235
Cards Punched-Local Only	8,166
Tape Mounts	3,623
Microfiche Developed	661,322
Microfiche Frames Developed	

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	123	n.a.
Matrix 35mm Color	149	573
Matrix-8 x 10	4	4
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	30	331
35mm Black/White/Sprocketed	0	0
35mm Color	8	56
16mm Black/White/Sprocketed	13	9,130
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	22,424
New Tapes Saved	1,073
Tapes Released	2,558
Datasets Exported to Tape	1,391
Datasets Imported from Tape	577

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (MARCH 31 THROUGH APRIL 27, 1989)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	19	4	6	2	2	1	4
Hrs Unavailable	18.60	3.80	6.71	2.85	0.86	1.21	3.15
MTF/Unscheduled	093.34				326.70	653.40	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12	4	6		1	1	
Hrs Unavailable	12.36	3.80	6.71		.63	1.21	
MTF/Unscheduled	113.81				227.63	227.63	
RED IBM 3033							
All Shifts							
Interruptions	9	3	3	2			1
Hrs Unavailable	11.23	3.11	.65	2.21			5.25
MTF/Unscheduled	660.76						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6	3	3				
Hrs Unavailable	3.76	3.11	.65				
MTF/Unscheduled							

AVAILABILITY STATISTICS, BY SERVICE (MARCH 31 THROUGH APRIL 27, 1989)

	Monthly Totals	Hdware	Scheduled Software	Other	Hdware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	9	3	3	2			1
Hrs Unavailable	11.23	3.11	.65	2.21			5.25
MTF/Unscheduled	660.76						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6	3	3				
Hrs Unavailable	3.76	3.11	.65				
MTF/Unscheduled							
NYLBUR							
All Shifts							
Interruptions	19	4	6	2	3	1	3
Hrs Unavailable	22.20	4.65	7.13	3.16	1.36	1.30	4.58
MTF/Unscheduled	92.82				216.60	649.80	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	4	6		2	1	
Hrs Unavailable	14.16	4.65	7.13		1.08	1.30	
MTF/Unscheduled	75.27				112.91	225.83	
MVS TSO							
All Shifts							
Interruptions	21	4	7	2	2	2	4
Hrs Unavailable	21.88	4.65	8.55	3.16	0.91	1.36	3.23
MTF/Unscheduled	81.26				325.05	325.05	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	4	7		1	2	
Hrs Unavailable	15.20	4.65	8.55		.63	1.36	
MTF/Unscheduled	74.93				224.80	112.40	
JES3							
All Shifts							
Interruptions	20	4	5	2	2	3	4
Hrs Unavailable	18.20	3.80	5.43	2.85	0.86	2.06	3.18
MTF/Unscheduled	72.64				326.90	217.93	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	4	5		1	3	
Hrs Unavailable	11.93	3.80	5.43		.63	2.06	
MTF/Unscheduled	57.01				228.06	76.02	
CICS							
All Shifts							
Interruptions	2				1	1	
Hrs Unavailable	7.71				6.41	1.30	
MTF/Unscheduled	332.14				664.28	664.28	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2				1	1	
Hrs Unavailable	7.71				6.41	1.30	
MTF/Unscheduled	116.14				232.28	232.28	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	8	1	3		3	1	
Hrs Unavailable	5.10	.66	1.83		2.33	.26	
MTF/Unscheduled	166.72				222.30	666.90	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	8	1	3		3	1	
Hrs Unavailable	5.10	.66	1.83		2.33	.26	
MTF/Unscheduled	58.62				78.30	234.90	
CRAY							
All Shifts							
Interruptions	13	8	1	1	1	2	
Hrs Unavailable	43.40	40.35	.45	.05	1.26	1.28	
MTF/Unscheduled	209.53				628.60	314.30	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2		1			1	
Hrs Unavailable	1.61		.45			1.16	
MTF/Unscheduled	238.38					238.38	

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (MARCH 31 THROUGH APRIL 27, 1989)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	Advanced Photon Source Div	1.3	0.8	0.0	0.6	2.7
272	Advanced Photon Source	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		1.3	0.8	0.0	1.6	2.7
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	Bio, Envir, & Med Res Div	2.5	2.2	0.1	2.0	6.7
149	BEM Div-Ctr for Envir Res	1.7	0.2	0.0	0.9	2.9
174	Ener/Env/Bio Res Prog Dir	0.3	0.1	0.0	0.1	0.5
190	Energy & Envir Syst Div	18.4	14.7	7.6	8.2	48.8
197	Off of Inter Energy Dev Progs	1.0	0.0	0.0	0.1	1.1
246	TIS - Natl Energy Software Ctr	0.1	0.0	0.0	0.9	1.1
274	Ener/Env/Bio Res Prog Adm	0.2	0.0	0.0	0.1	0.3
		---	---	---	---	---
SUBTOTAL		24.2	17.2	7.7	12.4	61.4
ENGINEERING RESEARCH						
102	EBR-II Project-ANL West	2.3	0.0	2.8	0.4	5.4
104	EBR-II Project-Illinois	7.5	0.0	0.0	2.5	10.0
107	Chemical Technology Division	2.0	0.3	0.0	27.8	29.9
112	Reactor Anal & Safety	13.6	0.3	3.8	6.7	24.4
114	Matls & Comp Tech Div	5.9	2.0	0.0	3.5	11.4
115	Engineering-Physics-Illinois	1.7	0.1	0.0	0.9	2.7
116	Engineering-Physics-Illinois	23.8	2.1	27.3	10.0	63.2
117	Engineering-Physics-ANL West	8.0	0.0	9.0	0.4	17.4
118	Reactor Exp & Exam Div	1.7	0.2	0.0	0.2	2.0
119	Analytical Laboratory ANL-West	0.0	0.0	0.0	0.0	0.0
171	Ener Res Prog Dir	0.0	0.0	0.0	0.1	0.1
178	Fusion Power Program	0.3	0.0	0.0	0.2	0.5
211	Eng Div-Design Eng Dept	0.0	0.0	0.0	2.7	2.7
269	Chem Tech Div-Analytical Chem	0.1	0.0	0.0	0.1	0.2
271	Engrg Res Prog Admin	0.5	0.0	0.0	0.3	0.8
		---	---	---	---	---
SUBTOTAL		67.3	4.8	42.9	55.8	170.9
EXTERNAL						
750	ACK Work Projects	0.5	0.0	0.2	0.4	1.1
751	ACK Work Projects-Dist	0.8	0.0	0.0	0.8	1.6
752		7.5	0.0	0.0	5.4	12.9
753		0.0	0.0	0.0	0.6	0.7
754		0.0	0.0	0.0	0.0	0.0
757		0.4	0.0	0.0	0.7	1.0
760		0.0	0.3	4.6	0.1	5.0
762		0.0	0.0	0.0	0.0	0.0
763		0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		9.2	0.3	4.7	8.1	22.4
OPERATIONS						
143	Supp Serv Div - Elec Dept	0.1	0.0	0.0	0.5	0.1
148	Human Resources-Health Dept	1.1	0.0	0.0	0.4	1.5
150	Plant Fac & Serv - Spec Matls	0.2	0.0	0.0	0.1	0.4
161	Tech Info Services Dept	1.6	0.0	0.0	1.5	3.1
201	Office of the Director	0.4	0.0	0.0	0.4	0.8
202	Ofc of Chief Oper Ofcr	0.1	0.0	0.0	0.1	0.2
210	Supp Serv Div - Cent Shops	0.2	0.0	0.0	0.1	0.3
216	Support Services Division	0.2	0.0	0.0	0.1	0.3
222	Plant Fac & Serv-Lodging Fac	0.0	0.0	0.0	0.0	0.0
232	Plant Fac & Serv-Security	0.3	0.0	0.0	0.1	0.4
234	Supp Serv Div-OHS-Health Phy	0.2	0.0	0.0	0.1	0.3
235	Supp Serv Div-Env Safe Health	2.1	0.0	0.0	0.6	2.7
236	Plant Fac & Serv-Fire Dept	0.0	0.0	0.0	0.0	0.0
260	Supp Serv Div-Graphic Arts	0.2	0.0	0.0	1.2	1.4
275	Office of Public Affairs	0.6	0.0	0.0	0.1	0.7
276	Ofc Pub Af - Motn Pic Unit	0.1	0.0	0.0	0.0	0.1
296	Telecom Cost/Recovery	0.0	0.0	0.0	0.3	0.3
315	Supp Serv Div-Matls & Serv	2.4	0.0	0.0	0.6	2.9
316	Plant Fac & Serv-Veh Maint	0.0	0.0	0.0	0.1	0.1
317	Plant Fac & Serv-Driv & Rig Ser	0.1	0.0	0.0	0.1	0.1
319	Supp Serv Div-Travel Ofc	0.3	0.0	0.0	0.0	0.3
322	Supp Serv Div-Procurement	0.0	0.0	0.0	0.0	0.0
333	QA, Envir & Safety Ofc	0.2	0.0	0.0	0.1	0.3
336	Supp Serv Div - Inspection	0.0	0.0	0.0	0.0	0.0
400	Ofc of Chief Fin Officer	48.8	0.0	0.0	11.1	60.0
401	Accounting	0.0	0.0	0.0	0.0	0.0
402	Ofc Chief Fin Ofcr-Data Entry	0.0	0.0	0.0	0.1	0.1
403	Budget Office	0.0	0.0	0.0	0.0	0.0
410	Human Resources Department	8.0	0.0	0.0	1.3	9.4
412	Affirm Action Program	0.1	0.0	0.0	0.2	0.2
501	Plant Fac & Serv-Bldg Maint	0.0	0.0	0.0	0.1	0.1
502	Plant Fac & Serv-Installation	0.0	0.0	0.0	0.0	0.0
503	Plant Fac & Serv-Grounds	0.0	0.0	0.0	0.0	0.0
504	Plant Fac & Serv-Custodial	0.0	0.0	0.0	0.0	0.0
505	Plant Fac & Serv-Waste Mgmt O	0.1	0.0	0.0	0.1	0.1
506	Plant Fac & Serv-Plant Mgr of	0.5	0.0	0.0	0.1	0.6
510	Plant Fac & Serv-Utility Syst	0.0	0.0	0.0	0.0	0.0
512	Plant Fac & Serv-Fac Plng/Eng	0.6	0.0	0.0	0.2	0.8
530	Site Mgrs Ofc-ANL West	0.1	0.0	0.0	0.0	0.2
531	Personnel-ANL West	0.8	0.0	0.0	0.0	0.2
532	Special Matls-ANL West	1.8	0.0	0.0	0.5	2.4
533	Accounting-ANL West	0.0	0.0	0.0	0.0	0.0
534	Purchasing-ANL West	0.0	0.0	0.0	0.0	0.0
535	Security - ANL West	0.0	0.0	0.0	0.0	0.1
536	Safety Staff-ANL West	0.2	0.0	0.0	0.0	0.2
537	Information Service-ANL West	0.0	0.0	0.0	0.0	0.0
538	Matls Handling-ANL West	0.1	0.0	0.0	0.0	0.1
550	Computer Appl & Serv - ANL-W	0.2	0.0	0.0	0.1	0.3
551	RAD Monitoring-ANL West	0.0	0.0	0.0	0.0	0.0
554	Machine Shop-ANL West	0.0	0.0	0.0	0.0	0.1
556	Site Engrg-ANL West	0.1	0.0	0.0	0.0	0.1
557	Plant Services-AW-Service Req	0.1	0.0	0.0	0.0	0.1
558	Plant Services-AW-Function	0.0	0.0	0.0	0.0	0.0
559	Food Services - ANL West	0.0	0.0	0.0	0.0	0.0
561	Ofc of Quality Assurance - AW	0.0	0.0	0.0	0.0	0.0
563	Talent Resource Pool-ANL West	0.0	0.0	0.0	0.0	0.0
730	Operating Work Projects	0.0	0.0	-0.0	-0.0	0.0
		---	---	---	---	---
SUBTOTAL		71.4	0.0	0.0	21.4	92.9
PHYSICAL RESEARCH						
115	Materials Science Division	1.6	2.6	1.4	2.2	7.9
119	Physics Div	2.8	0.3	1.6	1.4	6.1
120	Chemistry Div	1.1	3.3	0.0	1.6	6.0
136	Int Pulsed Neut Source Prog	0.2	0.4	0.1	0.4	1.0
137	High Energy Physics Div	0.8	2.8	3.1	1.1	7.8
139	Div of Educational Programs	0.9	0.0	0.0	0.3	1.2
145	Mathematics & Computer Sci E1	0.2	0.1	0.4	9.6	10.3
245	Computing & Telecommunications	11.8	0.0	0.0	4.8	16.6
24	CTD - Communications Services	2.2	0.0	0.0	1.4	3.3
273	Physical Research Program Adm	0.1	0.0	0.0	0.1	0.1
		---	---	---	---	---
SUBTOTAL		21.7	9.4	6.7	22.9	60.6
TOTAL		195.2	32.5	62.0	121.1	410.9

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

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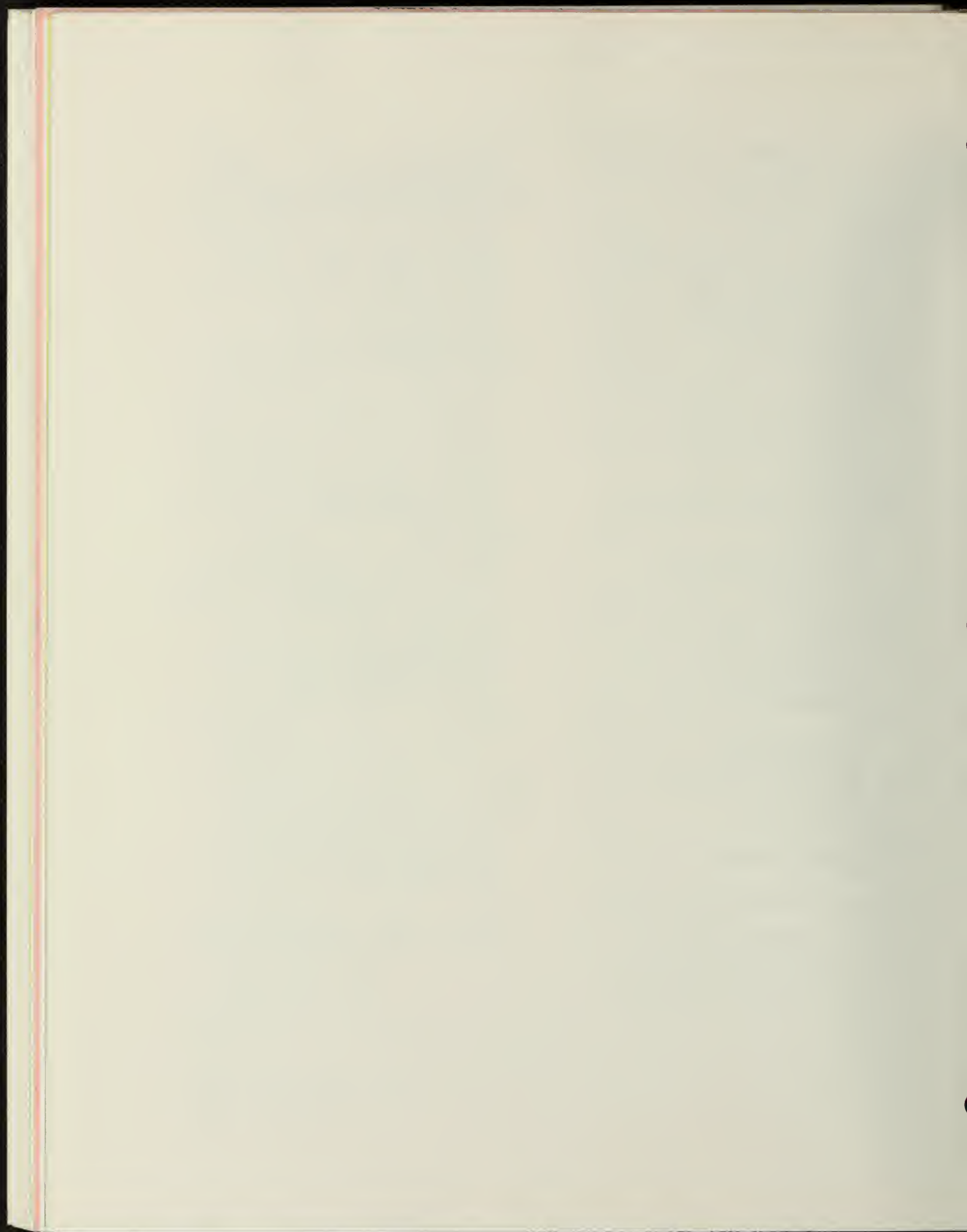
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Argonne National Laboratory
Computing and Telecommunications Division
June and July 1989

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering one demonstration, one seminar, and nine computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: June 8, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336)
Recommended Documentation for Computer Users at ANL (ANL/TM 379)
Guide to Telecommunications at ANL (ANL/TM 422)

Instructor: Fred Moszur

USING COMPUTER-BASED TRAINING

Goals: To learn how to use computer-based training (CBT) courses in CMS.

Length of Demonstration: One hour

Date and Time: June 14, 1989 (Wednesday), 9:30 a.m. to 10:30 a.m.

Location: Building 221, Room A-261

Instructor: Dave Leibfritz

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts of VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: June 14, 1989 (Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Instructor: Dave Lifka

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for MVS batch processing. To learn about the MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for batch execution.

Length of Class: One 3-hour session

Date and Time: June 15, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

INTRODUCTION TO UNICOS

Goals: To learn the basics of the Cray UNICOS file system and space management, as well as basic Unix commands.

Length of Class: One 2 1/2-hour session

Date and Time: June 16, 1989 (Friday), 9:30 a.m. to 12:00 noon

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System V* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield

USING VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.

Length of Class: One 3-hour session

Date and Time: June 16, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Instructor: Dave Lifka

INTRODUCTION TO UNICOS SHELL PROGRAMMING

Goals: To learn the basics of programming the Bourne Shell in UNICOS.

Length of Class: One 2 1/2-hour session

Date and Time: June 20, 1989 (Tuesday), 9:30 a.m. to 12:00 noon

Location: Building 221, Room A-261

Suggested Reading: *A Practical Guide to UNIX System* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield

USING THE CRAY X-MP FROM THE MVS STATION

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the MVS front-end station so that you can submit Cray jobs from CMS, MVS, and VAX/VMS systems.

Prerequisite: "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.

Length of Class: Two 3-hour sessions

Dates and Times: June 22, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
June 27, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Al Hinds

USING THE CRAY X-MP FROM THE VAX/VMS STATION

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing, how to submit work and to manage Cray files from the VAX/VMS front-end station so that you can submit and manage Cray batch jobs, and how to use the Cray station for interactive Cray sessions.

Prerequisite: "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.

Length of Class: One 3-hour session

Date and Time: June 23, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Tom Canfield

USING CMS ON IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals: To learn to use CMS with a display terminal or with a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; to get printed reports; and to use CMS and Xedit computer-based training courses for further self-study.

Length of Class: Two 3-hour sessions

Date and Time: June 27, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.
June 29, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *IBM VM System Product: CMS Primer* (SC24-5236) *CMS at ANL* (ANL/TM 423)

Instructor: Peter Bertoncini

UNICOS 5.0--WHAT'S DIFFERENT

Goals: To learn about the new features and changes in UNICOS 5.0.

Length of seminar: Two hours

Date and Time: July 6, 1989 (Thursday), 2:00 p.m. to 4:00 p.m.

Location: Building 221, Room A-261

Instructor: Alan Hinds

COMPUTER-BASED TRAINING COURSES

CTD currently offers 49 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
----------	---

CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CICS Course

CICSPI	CICS Concepts and Facilities
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CMS Courses

CMS	Using CMS
REXXAP	REXX Application Programming
XEDIT	Using XEDIT

Cobol Course

COBOL2	VS COBOL II: Making the Transition
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Office System Course

OFFICE	Office System Skills and Concepts
--------	-----------------------------------

PROFS Courses

PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
PGMJCL	JCL for Programmers
MVSUTL	Using IBM Utilities in Application Programming
SORTMRG	Using SORT/MERGE Utilities

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
--------	--

TSO Courses

CLSTPG	CLIST Programming
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting



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ARGONNE COMPUTING NEWSLETTER

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JULY 1989

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COMPUTING CENTER STATISTICS

COMPUTING CENTER TELEPHONE NUMBERS AND SERVICE SCHEDULE

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Computing Center Seminar

DEPOSITORY

JUL 24 1989

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien Hale	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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COMPUTING COMMENTS

COMPUTING RATES FOR OUTSIDE USERS

Effective May 1, 1989, outside users who are funded by DOE but not by ANL pay Laboratory indirect rates that bring their total computing costs to 126.08 percent of their computing bill. Outside users who are funded neither by DOE nor by ANL pay additional costs (including depreciation and DOE overhead) that bring their total computing costs to 158.97 percent of their computing bill. However, those using the Cray incur the 126.08 percent rate whether or not DOE funds them, because for FY1989 DOE has waived overhead charges for outside Cray use.

OFFICE AUTOMATION SITE STRATEGY UNDER REVISION

Consistent with DOE Order 1360.1A, ANL must annually review and update (where appropriate) any statement of strategy that addresses the planning, acquisition, management, and protection of personal computers, word processors, workstations, and associated peripheral equipment and software. ANL has developed and DOE-CH has approved (for the past five years) the *ANL Site Strategy for Computing Workstations* (ANL/TM 458) in compliance with DOE Order 1360.1A.

The *Site Strategy* explains the overall Argonne strategy for defining, acquiring, using, and evaluating computing workstations and other automated office systems. The appendices clarify Argonne's responsibilities in managing microprocessors and word processors and in acquiring computing workstation components.

A companion document, *Survey of ANL Organization Plans for Word Processors, Personal Computers, Workstations and Associated Software* (ANL/TM 459), is also under revision. The Computing and Telecommunications Division (CTD) will contact the cost centers' representatives listed in the *Survey* soon to provide revised plans, activities, and summary tables. In early August 1989, the Computing Policy Committee (CPC) will review these revised documents for transmission to DOE-CH by September 1, 1989.

The *Site Strategy* and the *Survey* are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

ARGONNE CONNECTION MACHINE USER GROUP MEETING

The second Argonne Connection Machine User Group meeting will be held on Wednesday, July 26, 1989, at 2:00 p.m. in Building 221, Room A-216.

The Connection Machine is a massively parallel computer in the Advanced Computing Research Facility (ACRF). Topics to be discussed will include finite element analysis and a molecular dynamics algorithm.

MATHEMATICS AND COMPUTER SCIENCE CONNECTION MACHINE FORTRAN CLASS

The Mathematics and Computer Science Division is offering a two-day introductory class on Monday and Tuesday, August 21-22, 1989, on Fortran programming for the Connection Machine-2 (CM-2) computer. The CM-2 is a massively parallel single-instruction multiple-data computer with 16,384 processors.

The class will cover generic Fortran 8x array features, Connection Machine Fortran (CMF) specific features, and Parallel Instruction Set/Fortran 77 programming. The class will include lectures and laboratory work. Knowledge of Fortran 77 and Unix and some previous experience in programming other parallel computers is necessary.

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a \$25.00 charge per employee.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, August 16-18, 1989) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the Butterfly-2, (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Knowledge of Unix and Fortran is strongly recommended. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a \$25.00 charge per person for universities, federal laboratories, and other government organizations and a \$100 charge for commercial organizations.

COMPUTING SEMINAR SCHEDULED FOR JULY 1989

During July 1989, CTD will offer a seminar detailing the differences between UNICOS 4.0 and UNICOS 5.0. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the seminar and notify attendees of any schedule changes. CTD will reschedule or cancel a seminar with fewer than six registrants *one week* prior to the scheduled date of the seminar.

"UNICOS 5.0--What's Different" (one 2-hour seminar) is for current UNICOS 4.0 users who want to learn about the new features and changes in UNICOS 5.0.

CMS NEWS

CMS EXECS FOR HANDLING MAIL WHILE YOU ARE AWAY

While you are away from the Laboratory (such as on vacation or travel), execs are available in CMS on the system Y minidisk to save or transfer incoming electronic mail and files before they are deleted from your reader after seven days. The exec, VACATION EXEC (contributed by Murray Peshkin, Physics), will place your electronic mail in a file named VACATION NOTEBOOK. This exec will place regular files on your minidisk, each with a unique filename of the form:

`yyddd nnn`

where "yy" is the last two digits of the current year, "ddd" is the three-digit day of the year, and "nnn" corresponds to the order of file creation on that day.

You should have sufficient space on your minidisk to hold the volume of electronic mail and files you receive during your absence. To request an increase in your minidisk space, contact Account Services (Building 221, Room A-147, extension 2-5425). After you process the electronic mail and files received during your absence, have Account Services decrease your minidisk space. Failure to provide sufficient space on your minidisk may result in the system purging your reader files during your absence.

To invoke the VACATION exec automatically, use the VMSCHEDULE software product in CMS:

```
VMSCHED SCHEDULE id VACATION (AT hh:mm AGAIN DAILY)
```

where "id" is the name you assign to identify the request (maximum eight alphanumeric characters) and "hh:mm" is the time of day you want the exec to run.

Another locally developed exec, TRANSRDR EXEC Y, transfers any incoming mail and files to another CMS user, a VAX/VMS user, or any address on the BITnet network. To invoke the TRANSRDR exec automatically, use the VMSCHEDULE software in CMS:

```
VMSCHED SCHEDULE id TRANSRDR userid AT node
(AT hh:mm AGAIN DAILY)
```

where "id" is the name you assign to identify the request (maximum eight alphanumeric characters), "userid" is the user you want to receive your mail, "node" is the user's node, and "hh:mm" is the time of day you want the exec to run.

To inquire about a scheduled exec, enter:

VMSCHED QUERY execname (LONG)

To cancel a scheduled exec, enter:

VMSCHED CANCEL execname

where "execname" is the name of the exec you want to run.

CA-DISSPLA 11.0 AVAILABLE FOR TESTING IN CMS

CA-Disspla 11.0 from Computer Associates (CA) is now available for user testing in CMS on the DISSPLA 2 minidisk. The major new features include:

- **Object Rendering**, which is the ability to represent complex geometric objects in wireframe as well as fully shaded models. CA-Disspla's object rendering feature provides algorithms for hidden line removal, depth sorting, front and backface visibility, lighting model, color variations, object transformations, object clipping, and scene definition and processing. Object rendering extends CA-Disspla's 3-D environment to include hither-and-yon clipping and viewing utilities (such as zoom, pan, roll, and directional viewing).
- **Image Processing**, which provides the ability to read into CA-Disspla any digitally recorded raster image stored as a collection of pixels. CA-Disspla accepts this information within a cell array that is treated as a drawing primitive. CA-Disspla's image processing implementation maintains device-independence and can be fully integrated within the diverse feature set of the product. The user can specify different levels of performance by reducing the raster information to the necessary resolution or by transforming the raster information to fill areas for shading.
- **Codebook**, which contains over 50 predefined programs or prototypes (Masters) developed specifically for scientific and engineering applications. Codebook interactive command ses-

sions generate actual Fortran files (including the subroutine calls used to create a particular graph or chart). The user can use Codebook as a learning tool or as an automatic applications generator for production graphics.

CA has implemented Disspla 11.0 in separate Fortran 77 (default) and Fortran 66 libraries. CA has supplied the Fortran 66 library for applications written in Fortran 66 that use Hollerith data types stored in REAL variables. Both Fortran 77 and Fortran 66 libraries are available. After one year, CA will require additional charges for the Fortran 66 library, and CTD will evaluate whether or not there is sufficient need to justify the cost.

The enhanced capabilities are:

- 2-D color contours.
- 3-D and 4-D color shaded surfaces.
- Increased control of the minimum and maximum data values for contour generation.
- Inverted map projections.
- Map graph clipping.
- Color mapping of data with automatic legend generation.
- Greek and Hebrew shaded fonts.
- GRAF LOG for secondary log axis with specified minimum and maximum values.
- New conic primitives: arcs, circles, and elliptical arcs.
- Runtime virtual memory allocation for improved performance in complex applications.
- Postprocessor directives read from file or program.
- Removal of use of blank common workspace for contouring and smoothing.

CA-Disspla 11.0 includes:

- Online HELP for all CA-Disspla routines and topics. To obtain online HELP, enter:

HELP subject MENU

where "subject" is the desired CA-Disspla command or topic.

- Dynamic loading of device driver program (available with Fortran 77 library only).

Users can defer selecting the graphics device for plotting (dynamic loading) until the CA-Disspla program is running. CA-Disspla will prompt for the device and certain other plot options during execution of the program. To use this feature, substitute the command that nominates the graphic device with "CALL PDEV(' ',ISTAT)". The system will prompt you to select from a variety of available devices and appropriate plot options. (See *CA-DISSPLA User Manual Version 11*, Volume 2. The chapter on devices describes this command and other commands that control device selection and control at runtime.)

To use CA-Disspla Version 11.0, link to the DISSPLA 2 minidisk and include the CA-Disspla libraries in a GLOBAL TXTLIB. For example, specify:

```
GLOBAL TXTLIB DIS110A DIS110B INTLIB ...
      (plus any other required libraries)
```

and

```
GLOBAL LOADLIB VFLODLIB
```

or (when using the dynamic load option)

```
GLOBAL LOADLIB DYNLIB VFLODLIB
```

Users who still use Fortran 66 should use the following GLOBAL TXTLIB statement:

```
GLOBAL TXTLIB D11066A DIS110B INTLIB ...
      (plus any other required libraries)
```

The *CA-DISSPLA User Manual Version 11* (RG 99 DS 1101S), Volumes 1 and 2, is the latest documentation available. A description of a Codebook session (along with a catalog of available prototypes) is in the *CA-DISSPLA Codebook User's Guide* (RG 99 CB 1001S). A description of creating and modifying your own Masters and other Codebook files for specific needs is in the *Guide to Making CA-DISSPLA Codebook Masters* (QG 99 CB 10MMS). These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

CMS PLOTTER EXEC TO BE DECOMMISSIONED

CTD is taking measures to decommission the obsolete PLOTTER exec in CMS. Formerly, this PLOTTER exec was necessary to identify the desired ANL plotting device. However, since January 1986, Cuechart, Tellagraf, and Disspla have incorporated their own internal methods to select plotting devices. The introduction of Disspla 11 capabilities for dynamically loading device drivers further reduces the need for the old PLOTTER exec (see "CA-Disspla 11 Available for Testing in CMS" above).

Many CMS users still invoke the PLOTTER exec (especially within their logon PROFILE EXEC), even though it is no longer necessary. Check your PROFILE EXEC for an EXEC PLOTTER statement, and remove it. Beginning on Monday, July 24, 1989, the PLOTTER exec will only issue an informational message.

There may be a few CMS users with very old Disspla programs that contain the CALL STRTPL or other obsolete local graphics subroutines that rely on the CMS PLOTTER exec. For information on using the current methods for selecting plotting devices, call the User Services consultants at extension 2-5405.

CRAY NEWS

CONVERSION SCHEDULE FOR UNICOS 5.0

CTD is preparing to install the UNICOS 5.0 operating system on the Cray X-MP/14. UNICOS 5.0 is a major software release that provides new capabilities for several functional areas. Initially, many of these new features will be disabled to provide a smoother transition for users from UNICOS 4.0 to UNICOS 5.0.

CTD tentatively plans to install UNICOS 5.0 on Monday, July 10, 1989, at 7:00 a.m. for a 24-hour user test. On Tuesday, July 11, 1989, at 7:00 a.m., CTD will purge from the batch queue all jobs that have not run, restart UNICOS 4.0, and evaluate the previous day's test. If there are no major difficulties with UNICOS 5.0, it will become the production Cray operating system on Monday, July 17, 1989, at 7:00 a.m.

Some user-level differences between UNICOS 4.0 and UNICOS 5.0 may affect the execution of existing jobs. CTD will hold a brief "UNICOS 5.0--What's Different" seminar to assist the Cray users with changing to UNICOS 5.0. See the schedule at the back of this *Newsletter*.

As CTD gains experience in UNICOS 5.0, we will enable new features and announce them in future *Newsletter* articles. CTD will test the viability of the UNICOS 5.0 fair share scheduler and plans to use UNICOS 5.0 interfaces to the UCC-1 tape management system and to the Unix Network File System (NFS).

IMSL VERSION 1.1 AVAILABLE FOR TESTING IN UNICOS

Updated versions of the International Mathematical and Statistical Libraries (IMSL) are now available for testing in UNICOS on the Cray X-MP/14. The updated libraries--(MATH LIBRARY V.1.1, STAT LIBRARY V.1.1, and SFUN LIBRARY V.2.1)--are in the `/new` directory as:

```
/new/libimslmath.a
/new/libimslstat.a
/new/libimslsfun.a
```

These updated libraries are specifically tailored for the Cray X-MP running UNICOS and result in a more reliable and efficient product for Cray X-MP users. The updated libraries contain all the features of the current production libraries; yet they perform with greater speed. Certain routines compiled without optimization in the previous version of the libraries have been recompiled with optimization. Vectorization of the Fortran Level 2 basic linear algebra subroutines (BLAS) by unrolling outer loops (where appropriate) has been completed in the updated library routines. These changes make other routines that depend on the Level 2 BLAS perform better.

You can refer to the IMSL libraries by their full UNICOS pathnames (described above) by using the `segldr -l` (a hyphen and the letter "l") command line option or `LIB` directives. Many routines in the IMSL mathematics and statistics libraries are duplicates of more highly optimized routines in the default UNICOS scientific library. However, the normal `segldr` library search order in UNICOS would result in linking the IMSL ver-

sions of these routines. To insure that you obtain the fastest versions of these duplicate routines, specify the default `/lib/libsci.a` library before the IMSL mathematics and statistics libraries in your `segldr` command line options or `LIB` directives. You do not need to specify any UNICOS default library before the IMSL special functions library. Thus, to invoke the new libraries from the `segldr` command line, specify:

```
segldr -lsci,/new/libimslmath.a ...
segldr -lsci,/new/libimslstat.a ...
segldr -l/new/libimslsfun.a ...
```

And, to invoke the new libraries in a `segldr LIB` directive, specify:

```
LIB=/lib/libsci.a,/new/libimslmath.a
LIB=/lib/libsci.a,/new/libimslstat.a
LIB=/new/libimslsfun.a
```

Prior to UNICOS 5.0, these specifications will result in a warning message for each duplicated entry point the `segldr` finds. To suppress these warnings, add

```
-D"DUPENTRY=IGNORE"
```

to the `segldr` command line or add the line

```
DUPENTRY=IGNORE
```

to your `segldr` directives file.

Users who experience difficulties while testing the `/new` IMSL libraries should contact the User Services consultants at extension 2-5405. If there are no difficulties, CTD will put these updated libraries into production on Monday, August 7, 1989, in the `/usr/lib` directory. After August 7, 1989, you should refer to these libraries in `segldr LIB` directives as

```
/usr/lib/libimslmath.a
/usr/lib/libimslstat.a
/usr/lib/libimslsfun.a
```

and as `imslmath`, `imslstat`, and `imslsfun` on the `segldr` command line.

MANAGEMENT INFORMATION SYSTEMS

ANL ISSUES RFP FOR LIBRARY INFORMATION MANAGEMENT SYSTEM

In June 1989, the Laboratory issued a Request for Proposals (RFP) to acquire a Library Information Management System. This RFP represents the completion of another major milestone in the three-year project started by Technical Information Services (TIS) and Computing and Telecommunications (CTD) in FY1988 to acquire and implement an automated system for TIS in FY1990.

The system will operate on the Laboratory's central DEC VAX 8700. Users can access the VAX cluster through several internal and external networks and through the Laboratory PBX-based digital telecommunications system. Remote access will also be available from terminals attached to Argonne computers that participate in the Laboratory-wide Digital Equipment Corporation network (DECnet) and the Laboratory-wide Transmission Control Protocol/Internet Protocol (TCP/IP) network.

The system will contain scientific and technical information resources purchased, managed, and held in ANL libraries and the Argonne scientific and technical publications reviewed and recorded in the TIS Technical Publications Services. These resources include 65,000 books, 3,500 journals, 60,000 reports, and 100,000 of ANL's research publications. The databases will contain book tables of contents, abstracts of Argonne publications, and eventually the full text of Argonne publications.

The system will also include (1) online access with keyword, full text, and subject search and retrieval to the entire database, (2) automated circulation so library users can perform such functions as checking out library materials, (3) cataloging to maintain the integrity of the collection, (4) serials management to manage publications issued serially (journals and standing orders), (5) publications acquisition to order monographs and subscriptions, (6) interlibrary loans to manage loaned and copyright law compliance statistics, and (7) a database management system to allow TIS to create and maintain additional applications developed for the system.

INTEGRATED FINANCIAL SYSTEM USER REPORTS DISTRIBUTED

On Monday, June 12, 1989, the Integrated Financial System (IFS) Project Team distributed critical financial reports to users. Additional reports were available throughout the month. Financial Management System (FMS) data is no longer updated; however, an interface to the Uniform Contractor Reporting System (UCRS) subsystem of FMS is being generated.

The classes on using Information Expert to run user reports have been delayed until IFS stabilizes. The IFS Project Team will continue to distribute user reports during the stabilization period.

Accounting continues to monitor cost and commitment data closely and will make revisions to the system as necessary. Progress on all phases of the project will be reported at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

VAX/VMS NEWS

VMS 5.1 IN PRODUCTION

On Monday, June 19, 1989, CTD upgraded the operating system of the central VAX cluster to Version 5.1-1 of VMS. CTD encountered no difficulties with the major applications or system programs. We will describe the new features of the system in a future *Newsletter*.

VAX 8700 MAXIMUM PROGRAM SIZE INCREASED

During May 1989, CTD reconfigured the central VAX 8700 system to accommodate a user program that requires up to 150,000 pages (approximately 73 megabytes of virtual memory) to execute. The prior limit was 70,536 pages (34 megabytes). Since most users do not run programs larger than 34 megabytes and the new page file quota maximum incurs additional system overhead resources, the increased limit is available only at a user's request. To take advantage of the new limit to run a large program, call Account Services at extension 2-5425 and request an increased page file quota. The default page file quota for new

accounts is still 20,480 pages (ten megabytes); some accounts already have increased quota values. You can display your current page file quota value for your account by entering:

```
$ SHOW PROCESS /QUOTA
```

Your account's working set size determines the amount of real memory your process uses. If you run large programs on a VAX, you should examine the number of page faults; excessive page faults will result in a noticeable accumulation of processor (CPU) time for the page faulting overhead activity. The command

```
$ SHOW PROCESS /ACCOUNTING
```

displays your process information (including page fault count). You should execute the command before and after your large program executes. If the number of accumulated page faults is many times larger than the program size, submit your program to one of the SPECIAL batch queues. SPECIAL batch queues permit large working set sizes for efficient paging and execution. (See "How Batch Job Scheduling Works on the Central VAX Cluster" in the April 1989 *Newsletter*.) Large jobs executing from SPECIAL queues can acquire approximately 49,152 pages of real memory (24 megabytes) and can run more efficiently than when submitted to other queues by decreasing the number of page faults.

FORWARDING VMS MAIL

There are situations when you may want electronic mail sent to your VAX account to be forwarded to some other person or destination. Some users prefer to have someone attend to their electronic mail during periods of vacation or travel. Some users with VMS accounts on multiple systems elect to forward mail to a single account. To automatically forward your VMS electronic mail, invoke the VMS mail utility and set your forwarding address (node::userid). For example:

```
$ mail
MAIL>set forward anlcvl::B12345
MAIL>exit
$
```

To cancel the forwarding procedure, enter:

```
$ mail
MAIL>set noforward
MAIL>exit
$
```

NAG MARK 13 AVAILABLE FOR TESTING ON THE VAX 8700

CTD has installed the Numerical Algorithms Group (NAG) Mark 13 library on the central VAX 8700 computer for user testing. As in the previous Mark 12 level, Mark 13 provides subroutines for VAX D and G floating-point precisions. The NAG Fortran library now includes 688 user-level routines that cover the principal areas of mathematics and statistics for use in numerical analysis, engineering, and the physical, biological, social, and management sciences.

Use the SETUP function to make the Mark 13 version libraries available to you for testing. For example, to set up NAG Mark 13, enter the DCL command:

```
$ SETUP NAG
```

Mark 13 has 91 new user-callable routines for VAX G_FLOATING precision. Thirty-three routines have been withdrawn. Information on these changes is available online by entering:

```
$ HELP @NAG MARK13
```

Also, *NAG Fortran Library Introductory Guide, Mark 13* (ISBN 1-85206-046-8) is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). For additional information on these and other routines scheduled to be withdrawn from the Mark 14 and later releases, see the section called "Fortran MK13 News" in the *NAG Fortran Library Manual* (ISBN 1-85206-040-9), which CTD will order for users on request.

Mark 12 users will notice no change in the way they access the Mark 13 libraries. You will link your Fortran programs to the D_FLOATING or G_FLOATING routines by using the same logical names that you used in Mark 12. For example, to link to the G_FLOATING routines, first compile your Fortran programs by using the Fortran qualifier /G_FLOATING. Then, link your Fortran program with the following command:

\$ LINK myfort,NAGG/OPT

Mark 13 also includes shareable images for the D_FLOATING and G_FLOATING libraries. If you link to a shareable image, you can reduce your link time and the size of your linked programs. To link your G_FLOATING Fortran program with the G_FLOATING shareable library, enter the following command:

\$ LINK myfort,NAGGSHR/OPT

If you do compile your Fortran without the G_FLOATING precision, you should use the name NAG or NAGSHR in the above commands.

Mark 13 includes an additional interactive help capability. To invoke it, enter the DCL command:

\$ NAGHELP

NAGHELP is designed for usage in two steps. First, you characterize the problem to be solved. You specify keywords and then answer increasingly specific questions to isolate the routines that are potential candidates for solving your problem. Second, you examine essential aspects of the documentation for the candidate routines to obtain detailed usage information. Since the definition of each parameter in a calling sequence is accessible via NAGHELP, you will need to refer to the *NAG Fortran Library Introductory Guide, Mark 13*, only for detailed background information.

Additionally, NAG has included several online text documents with the libraries; the documents are in the directory NAG\$ROOT:[MARK13]. You can view these documents interactively by typing them or by printing them. A list of these documents follows:

Document Type	D Filename	G Filename
Essential Information	ESSINT.DOC	ESSINTG.DOC
User's Notes	UN.DOC	UNG.DOC
Summary Information	SUMMARY.DOC	SUMMARYG.DOC

Online Information Supplement (NAGHELP) VMSIN.DOC

For example, if you want to display the contents of the Online Information Supplement on your terminal, enter:

\$ TYPE/PAGE NAG\$ROOT:[MARK13]VMSIN.DOC

BITS & BYTES

SAS RELEASE 5.18 AVAILABLE FOR USER TESTING IN CMS AND MVS BATCH

Version 5.18 of the Statistical Analysis System (SAS) is now available for user testing on the SAS 2 minidisk in CMS. It is also available as SYS2.SAS.LIBRARY in MVS batch.

New SAS features available with Release 5.18 are:

- Procedure MODECLUS that clusters the observations in a SAS dataset by using any of several algorithms based on non-parametric density estimates.
- SAS/Graph map datasets.
- SAS/Graph timesteps and fonts.
- SAS/Graph GOPTIONS.
- Micro-to-Host enhancements that allow you to execute SAS/Graph procedures on the host, to view the results on your IBM Personal Computer, to download SAS catalogs to your IBM Personal Computer executing Release 6.03 of SAS software, and to connect your personal computer to the host through a protocol converter.
- SAS/AF software that is a full screen capability for interactive development of user-friendly applications. Applications programmers can use SAS/AF software to write interfaces to both the SAS system and non-SAS applications. Preprogrammed procedures are used to construct menu screens, to connect users with those screens necessary to perform a SAS job, and to transport screens between operating environments. HELP screens make it possible to provide online HELP and to query at any point in an application. For a complete description of SAS/AF, refer to the *SAS/AF User's Guide, Version 5 Edition*, and the *SAS/AF Sample Menu System. Technical Report P-141, Guide to SAS/AF Menus, Version 5*, describes a working model that can serve as the basis for an easy-to-use, site-tailored system of MENU screens to drive users' most popular and commonly used computer applications.

- SAS/Graph PostScript drivers that can capture PostScript output in an external file that you can route to a PostScript device. SAS has provided five resolutions (72, 150, 300, 720, and 1200 dots per inch) that are available with the graphics driver named *PSdpi* (for example, PS300). Each will create its respective PostScript output file, *PSdpi* GSF A1 in CMS. The user can route the PostScript output to a disk file by including in the GOPTIONS statement:

```
GSFNAME=fileref
```

where "fileref" is any valid SAS file reference. A CMS FILEDEF statement for "fileref" must precede the GOPTIONS statement.

For example, to create a PostScript file at 300 dots per inch and later route it to your Apple LaserWriter, add the following SAS commands to your SAS procedure:

```
CMS FILEDEF FT18F001 DISK POPFIL LISTPS A
GOPTIONS DEVICE=PS300 GSFLN=132 GSFMODE=REPLACE
NODISPLAY GSFNAME=FT18F001
```

To use the SAS/Graph PostScript drivers in MVS, use JCL similar to the following:

```
//STEP1 EXEC SASGRAPH,SASLIB='SYS2.SAS.LIBRARY',
// GRAFLIB='SYS2.SASGRAPH.LIBRARY'
//PSOUTPUT OUTPUT DEST=ANLOS.RM113PR2,UCS=PS
//FT32F001 DD SYSOUT=A,OUTPUT=*.PSOUTPUT,
// DCB=(RECFM=FB,LRECL=132,BLKSIZE=1320)
//SYSIN DD *
GOPTIONS DEVICE=PS300 GSFLN=132 GSFMODE=REPLACE
NODISPLAY GSFNAME=FT32F001;
(rest of your SAS/Graph program)
```

CTD has modified the CMS HARDCOPY exec file to recognize these new types of graphic files and to process them accordingly.

New enhancements to SAS features available with this release are:

- Additional options for the TABLES statement in the FREQ procedure.
- Negative values of the WEIGHT variable accepted in the FREQ procedure.
- A FORMAT procedure that allows the creation of user-written formats.

For a complete list of the new features and

enhancements of SAS Release 5.18, refer to *SAS Technical Report P-175, Changes and Enhancements to the SAS System, Release 5.18, Under OS and CMS*.

Version 5.18 also incorporates several changes from Version 5.16. We suggest that SAS users read a description of these changes in *SAS Technical Report P-146, Changes and Enhancements to the Version 5 SAS System* and *Technical Report P-164, Additional SAS/GRAPH Hardware Interfaces*.

To test SAS 5.18 in CMS, enter:

```
CP LINK SAS 2 vaddr
ACCESS vaddr filemode
SAS or SASGRAPH
```

where "vaddr" is any unassigned virtual address and "filemode" is any unassigned filemode letter that occurs alphabetically before any filemode letter associated with the SAS 1 minidisk in your virtual machine.

To invoke the SAS/AF sample menu, enter the following command after you have accessed the SAS 2 minidisk:

```
AFMENU
```

To test SAS 5.18 in MVS, use the following JCL:

```
//STEP1 EXEC SAS,SASLIB='SYS2.SAS.LIBRARY'
OR
//STEP1 EXEC SASGRAPH,SASLIB='SYS2.SAS.LIBRARY'
// GRAFLIB='SYS2.SASGRAPH.LIBRARY'
```

Users who experience difficulties with SAS 5.18 should contact the User Services consultants at extension 2-5405. CTD will order SAS technical reports for users on request.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221,

Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

A June 1989 addendum to *Recommended Documentation for Computer Users* (ANL/TM 379, Revision 1) updates the lists of documents in Chapters 3 and 4. The addendum lists (1) new and revised documents we have added at the Document Distribution Counter, (2) documents we no longer recommend, and (3) abstracts for added documents.

Cray Research, Inc. Documents

The *DEC VAX/VMS Station Guide to Access Facilities* (SN-0362 4.01) provides information on the VAX/VMS station Common Access Facilities. The Common Access Facilities are a defined interface through which an application communicates with the station interactive routines. The *Guide* is divided into two sections. Section 1 describes how to achieve task-to-task communication through the Fortran Common Access Interface. Section 2 describes how to achieve task-to-task communication through the interactive Common Access Interface. Readers should have a general understanding of the VAX/VMS operating system, the VAX/VMS station, and a Cray operating system (such as UNICOS or COS).

IBM Documents

Resource Access Control Facility (RACF) General Information (GC28-0722-12) contains an overview and planning information for Version 1 Release 8 for MVS and VM of the program product RACF. RACF is a program that provides system security, resource access control, auditability and accountability, and administrative control. The chapters in this manual are Chapter 1, which discusses the need for data security, provides a basic description of RACF, and identifies key RACF features; Chapter 2, which provides a high-level introduction to RACF installation planning; Chapter 3, which describes RACF functions (including RACF generalization, RACF-CICS/VS interaction, and RACF-IMS/VS interaction); Chapter 4, which explains how to use the RACF commands, ISPF panels, exits, options, and tools to implement and control RACF; and Chapter 5, which summarizes the new functions provided in the manual. Readers should be familiar with MVS or VM. This manual supersedes the *RACF General Information Manual* (GC28-0722).

CICS Documents

The *CICS Application Programming--Student Workbook* is a summary of the computer-based training course "CICS Application Programming" (CICSP2). Computer-based training offers students the ability to select a convenient time and place for training, hands-on experience, and the ability to work at their own pace. The *Workbook* is for reference and review of course topics. The organization of the *Workbook* follows the organization of the course; each course session is represented, usually with a summary of the key statements in the session. However, you will not need to follow the *Workbook* page by page as you take the course.

VAX Documents

The *VAX Fortran User Manual* (AI-D035E-TE), Volume 1, explains how to create, compile, link, execute, and debug VAX Fortran programs on a VMS operating system. This *Manual* supersedes the *VAX Fortran User's Guide* (AA-D035D-TE).

The *VAX Fortran Language Reference Manual* (AI-D034E-TE), Volume 2, is a reference manual that describes the VAX Fortran language for VMS. This *Manual* supersedes *Programming in VAX Fortran* (AA-D034D-TE). Readers should have a basic understanding of the Fortran language and the VMS system. These two VAX Fortran volumes constitute a set of documents on VAX Fortran for Version 5.0 users.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD JUNE 6, 1989

The chairman, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:05 p.m.

CTD Recovery and Funding. Mike Boxberger (Computing and Telecommunications) reported on the state of CTD's income compared with its needs and projections. Cost recovery is up but below the necessary levels to provide a balanced budget. This situation is primarily because of the lower priority classes used on the Cray. The budget projections had anticipated greater use of the

normal priority class, but users have been able to get their work done with the night and weekend classes. Use is up from the beginning of the year. The IBM system is meeting its revenue projections. CTD has taken steps to control expenses, and the Chief Financial Officer has assured adequate income by increasing the Laboratory indirect assessment to 26.08 percent from 25.13 percent (effective May 1, 1989).

Upgrade to UNICOS Version 5.0. Joe Midlock (Computing and Telecommunications) reported on the plans to upgrade the Cray operating system to UNICOS 5.0. CTD will install the basic system first and then will gradually introduce the new features. (See "Conversion Schedule for UNICOS 5.0" in this *Newsletter*.)

Upgrade to VAX/VMS Version 5.1. Rich Raffanetti (Computing and Telecommunications) reported on CTD's plans to upgrade the operating system to Version 5.1 (see "VMS Version 5 Upgrade Plan" in the June 1989 *Newsletter*). CTD has upgraded all the production software to Version 5 of VAX/VMS. Available improvements include a new editor, IF/THEN/ELSE structures in the command language, new mail options, symmetric multiprocessors, and VMS workstations in the cluster configuration. There will also be enhancements to system management with simpler commands for batch job manipulation. A new DECnet proxy capability permits remote users to have proxy access to multiple local accounts.

Computing Policy Committee (CPC) Meeting Report. Dotti Bingaman reported on the CPC meeting held on May 26, 1989, at which Jean Troyer (Computing and Telecommunications) presented a draft of the proposed *ANL Computer Protection Policy*, written to conform to DOE Order 1360.2A. The proposed *Policy* defines significant systems and redefines sensitive systems. It includes (1) requirements for review and certification of protection of sensitive systems, (2) incident reporting procedures, (3) requirements for education and awareness, and (4) requirements for per-

forming random file checks. After a short discussion, the Committee decided that each member should review the draft and provide Jean with comments.

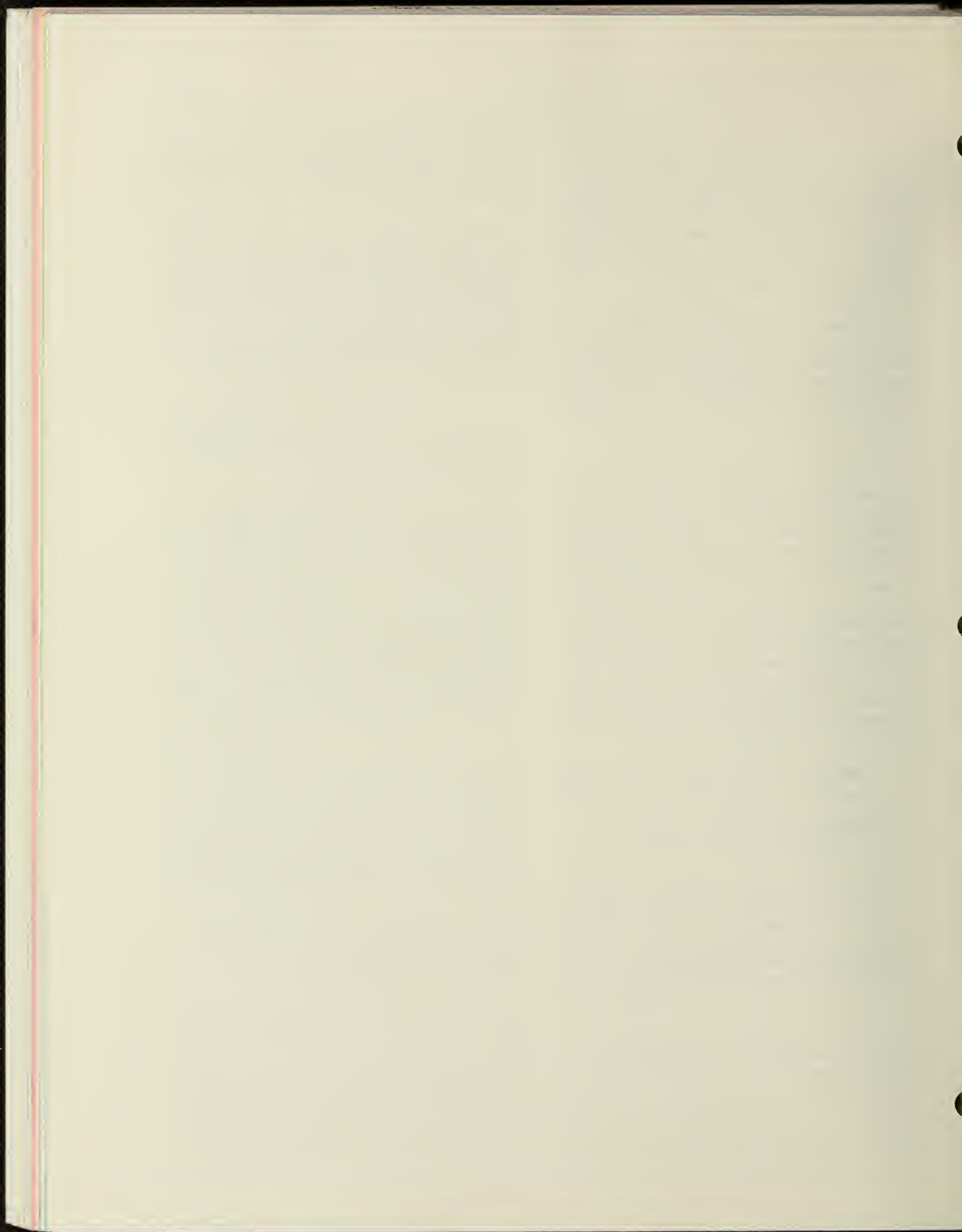
Shannon Savage (Technical Information Services) described the Library Information Management System to be installed on the VAX 8700. It will contain databases of ANL information and will provide users with keyword, full text, and subject search and retrieval. (See "ANL Issues RFP for Library Information Management System" in this *Newsletter*.) When the system becomes available, the Library will hold training sessions for users.

Dave Weber (Computing and Telecommunications) reported on the central computing machine usage and presented cost recovery options for CTD. (See earlier agenda item.)

Larry Amiot (Computing and Telecommunications) discussed the status of the Energy Sciences network (ESnet). The ESnet Steering Committee and Site Coordinating Committee held meetings in May 1989. The new ESnet Phase II plans seem more reasonable to ANL. We will be connected to the National Network Testbed backbone via microwave to Fermi National Accelerator Laboratory (FNAL) in the initial installation (expected to be operational by mid-August 1989) and to Oak Ridge National Laboratory (ORNL) and Princeton Plasma Physics Laboratory (PPPL) by commercial T1 in mid-October 1989. Larry will be chairman of a new Energy Science Coordinating Committee (ESCC) Routing Task Force to determine how to handle routing for ESnet. An ESnet Technical Task Force is also being formed to plan the migration of ESnet to the Open Systems Interconnect (OSI) standards. The High Energy Physics network (HEPnet) Technical Coordinating Committee is discussing how X.25 will be handled in Phase II.

The meeting adjourned at 3:35 p.m.

Ken Miles, CUG Secretary



WORKLOAD STATISTICS (APRIL 28 THROUGH MAY 30, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,255	1,263	498
Wylbur	1,655	1,664	455
MVS TSO	54	54	14
CICS	1,655	1,664	96
MVS Batch	2,081	2,106	680
VAX/VMS	410	413	209
Cray	347	424	114
All Systems	2,081	2,106	978

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
INTERACTIVE						
CMS	12,589	2,364	2,104	17,057	36,861.6	98.42
Wylbur	8,666	386	442	9,494	8,882.7	10.57
MVS TSO	159	0	0	159	130.9	0.63
CICS	23	0	0	23	0.0	1.06
VAX/VMS	13,960	860	4,201	19,021	14,638.5	119.33
Cray	311	78	74	463	1,476.5	1.62
IBM BATCH						
Class U	11,210	2,253	1,673	15,136	n.a.	49.04
Class W	17,027	1,914	1,021	19,962	n.a.	179.44
Class X	2	1,051	31	1,084	n.a.	51.23
Class Y	0	0	391	391	n.a.	17.12
Nonmain	12,713	1,355	927	14,995	n.a.	0.00
Total	40,952	6,573	4,043	51,568	n.a.	296.83
CRAY BATCH						
u	311	78	74	463	n.a.	1.62
w	1,441	236	185	1,862	n.a.	122.20
x	1,400	141	156	1,697	n.a.	61.58
y	1,878	492	511	2,881	n.a.	295.50
Total	5,030	947	926	6,903	n.a.	480.90
VMS BATCH						
W BATCH	1,946	215	123	2,284	n.a.	32.50
X BATCH	5	33	5	43	n.a.	19.63
Y BATCH	1	5	13	139	n.a.	5.73
Total	1,952	253	141	2,466	n.a.	57.86

INPUT/OUTPUT

Lines Printed	
Local	64,415,825
Remote	49,391,820
Fiche	30,402,320
Cards Punched-Local Only	16,950
Tape Mounts	7,811
Microfiche Developed	3,904
Microfiche Frames Developed	665,833

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	79	n.a.
Matrix 35mm Color	72	401
Matrix-8 x 10	124	137
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	5	3,202
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	22,378
New Tapes Saved	1,045
Tapes Released	1,414
Datasets Exported to Tape	1,545
Datasets Imported from Tape	589

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (APRIL 28 THROUGH MAY 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	14.00	1.00	9.00		1.00	2.00	1.00
Hrs Unavailable	21.58	0.25	11.36		0.70	0.43	8.83
MTF/Unscheduled	192.60				770.41	385.20	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00		9.00		1.00		
Hrs Unavailable	12.06		11.36		0.70		
MTF/Unscheduled	263.93				263.93		
RED IBM 3033							
All Shifts							
Interruptions	8.00	2.00	3.00		1.00	1.00	1.00
Hrs Unavailable	13.26	2.30	0.78		0.10	0.16	9.91
MTF/Unscheduled	259.57				778.73	778.73	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00	1.00	3.00			1.00	
Hrs Unavailable	1.41	0.46	0.78			0.16	
MTF/Unscheduled	274.58					274.58	

AVAILABILITY STATISTICS, BY SERVICE (APRIL 28 THROUGH MAY 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	8.00	2.00	3.00		1.00	1.00	1.00
Hrs Unavailable	13.26	2.30	0.78		0.10	0.16	9.91
MTF/Unscheduled	259.57				778.73	778.73	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00	1.00	3.00			1.00	
Hrs Unavailable	1.41	0.46	0.78			0.16	
MTF/Unscheduled	274.58					274.58	
NYLBUR							
All Shifts							
Interruptions	17.00	1.00	10.00		3.00	2.00	1.00
Hrs Unavailable	22.33	0.25	11.83		0.90	0.51	8.83
MTF/Unscheduled	128.27				256.55	384.83	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12.00		10.00		2.00		
Hrs Unavailable	12.70		11.83		0.86		
MTF/Unscheduled	131.65				131.65		
MVS TSO							
All Shifts							
Interruptions	15.00	1.00	10.00		1.00	2.00	1.00
Hrs Unavailable	22.13	0.25	11.83		0.70	0.51	8.83
MTF/Unscheduled	192.46				769.86	384.93	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	11.00		10.00		1.00		
Hrs Unavailable	12.53		11.83		0.70		
MTF/Unscheduled	263.46				263.46		
JES3							
All Shifts							
Interruptions	14.00	1.00	9.00		1.00	2.00	1.00
Hrs Unavailable	21.58	0.25	11.36		0.70	0.43	8.83
MTF/Unscheduled	192.60				770.41	385.20	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00		9.00		1.00		
Hrs Unavailable	12.06		11.36		0.70		
MTF/Unscheduled	263.93				263.93		
CICS							
All Shifts							
Interruptions	1.00				1.00		
Hrs Unavailable	0.90				0.90		
MTF/Unscheduled	791.10				791.10		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00				1.00		
Hrs Unavailable	0.90				0.90		
MTF/Unscheduled	275.10				275.10		
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	4.00		2.00			1.00	
Hrs Unavailable	6.16		1.41			2.21	2.53
MTF/Unscheduled	392.91					785.83	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00		2.00			1.00	
Hrs Unavailable	3.63		1.41			2.21	
MTF/Unscheduled	272.36					272.36	
CRAY							
All Shifts							
Interruptions	18.00	7.00	5.00			4.00	2.00
Hrs Unavailable	64.46	14.16	6.96			3.16	40.16
MTF/Unscheduled	121.25					181.88	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9.00		4.00			4.00	1.00
Hrs Unavailable	43.05		2.80			3.16	37.08
MTF/Unscheduled	46.59					58.23	

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (APRIL 28 THROUGH MAY 30, 1989)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	Advanced Photon Source Div	1.1	1.5	0.0	0.6	3.3
272	Advanced Photon Source	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		1.1	1.5	0.0	0.6	3.3
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	Bio, Envir, & Med Res Div	2.5	2.1	0.2	2.1	6.9
149	BEM Div-Ctr for Envir Res	1.7	0.1	0.0	1.2	3.1
174	Ener/Env/Bio Res Prog Dir	0.3	0.1	0.0	0.1	0.6
190	Energy & Envir Syst Div	17.2	15.3	0.7	8.1	41.3
197	Off of Inter Energy Dev Progs	0.8	0.0	0.0	0.1	0.9
246	TIS - Natl Energy Software Ctr	0.2	0.0	0.0	0.8	1.0
274	Ener/Env/Bio Res Prog Adm	0.1	0.0	0.0	0.1	0.3
		---	---	---	---	---
SUBTOTAL		22.9	17.6	1.0	12.5	54.0
ENGINEERING RESEARCH						
102	EBR-II Project-ANL West	2.4	0.0	1.0	0.4	3.9
104	EBR-II Project-Illinois	6.4	0.0	0.0	3.2	9.6
107	Chemical Technology Division	2.5	0.2	0.0	27.7	30.3
112	Reactor Anal & Safety	14.8	0.4	1.6	6.7	23.5
114	Matls & Comp Tech Div	11.3	2.7	0.0	4.5	18.5
115	Engineering-Physics-Illinois	1.6	0.2	0.0	1.0	2.9
116	Engineering-Physics-Illinois	31.0	2.0	21.9	10.4	65.2
117	Engineering-Physics-ANL West	7.4	0.0	5.7	0.5	13.5
118	Reactor Exp & Exam Div	2.3	0.6	0.0	0.3	3.2
119	Analytical Laboratory ANL-West	0.0	0.0	0.0	0.0	0.0
171	Engrg Res Prog Dir	0.0	0.0	0.0	0.1	0.1
178	Fusion Power Program	0.4	0.1	0.0	0.2	0.7
211	Eng Div-Design Eng Dept	0.1	0.0	0.0	2.7	2.7
269	Chem Tech Div-Analytical Chem	0.1	0.0	0.0	0.1	0.2
271	Engrg Res Prog Admin	0.5	0.0	0.0	0.3	0.7
		---	---	---	---	---
SUBTOTAL		80.7	6.2	30.2	58.0	175.1
PHYSICAL RESEARCH						
105	Materials Science Division	2.2	3.4	2.7	2.4	10.6
109	Physics Div	2.5	0.5	0.6	1.5	5.1
120	Chemistry Div	1.7	2.2	0.3	1.4	5.6
136	Int Pulsed Neut Source Prog	0.2	0.6	0.3	0.5	1.5
137	High Energy Physics Div	0.9	4.0	10.2	-1.0	14.1
139	Div of Educational Programs	1.0	0.0	0.0	0.2	1.2
145	Mathematics & Computer Sci Di	0.2	0.2	0.5	7.8	8.6
146	Scientific Applications Research	0.0	0.1	0.0	0.1	0.2
245	Computing & Telecommunications	15.7	0.0	0.0	4.9	20.6
247	CTD - Communications Services	2.0	0.0	0.0	1.3	3.3
273	Physical Research Program Adm	0.1	0.0	0.0	0.0	0.2
		---	---	---	---	---
SUBTOTAL		26.4	10.9	14.5	19.0	70.9
EXTERNAL						
750	ACK	0.4	0.0	0.0	0.2	0.6
751	Fermi National Laboratory	0.9	0.0	0.0	0.9	1.8
752	Navy	8.5	0.0	0.0	6.3	14.8
753	Morgantown Energy Technical Ctr	0.0	0.0	0.0	0.6	0.7
754	DOE-CH at ANL	0.0	0.0	0.0	0.0	0.0
757	ACK	0.4	0.0	0.0	0.8	1.1
760	Abbott Laboratories	0.0	0.3	2.7	0.0	3.0
762	State University of New York	0.0	0.0	0.0	0.1	0.1
763	General Electric Company	0.0	0.0	0.0	0.0	0.0
		---	---	---	---	---
SUBTOTAL		10.3	0.3	2.7	8.9	22.2
OPERATIONS						
143	Supp Serv Div - Elec Dept	0.2	0.0	0.0	0.3	0.5
148	Human Resources-Health Dept	1.2	0.0	0.0	0.4	1.7
150	Plant Fac & Serv - Spec Matls	0.3	0.0	0.0	0.2	0.5
161	Tech Info Services Dept	2.5	0.0	0.0	3.1	5.6
201	Office of the Director	0.5	0.0	0.0	0.4	0.9
202	Ofc of Chief Oper Ofcr	0.1	0.0	0.0	0.1	0.2
210	Supp Serv Div - Cent Shops	0.2	0.0	0.0	0.1	0.3
216	Support Services Division	0.3	0.0	0.0	0.1	0.4
222	Plant Fac & Serv-Lodging Fac	0.0	0.0	0.0	0.0	0.0
232	Plant Fac & Serv-Security	0.4	0.0	0.0	0.1	0.5
234	Supp Serv Div-OHS-Health Phy	0.3	0.0	0.0	0.1	0.4
235	Supp Serv Div-Env Safe Health	1.3	0.0	0.0	0.4	1.6
236	Plant Fac & Serv-Fire Dept	0.0	0.0	0.0	0.0	0.0
260	Supp Serv Div-Graphic Arts	0.2	0.0	0.0	1.1	1.3
275	Office of Public Affairs	0.8	0.0	0.0	0.1	0.9
276	Ofc Pub Af - Motn Pic Unit	0.1	0.0	0.0	0.0	0.1
296	Telecom Cost/Recovery	0.0	0.0	0.0	0.3	0.3
315	Supp Serv Div-Matls & Serv	3.0	0.0	0.0	0.8	3.8
316	Plant Fac & Serv-Veh Maint	0.1	0.0	0.0	0.1	0.2
317	Plant Fac & Serv-Driv & Rig Ser	0.1	0.0	0.0	0.1	0.1
319	Supp Serv Div-Travel Ofc	0.3	0.0	0.0	0.0	0.3
322	Supp Serv Div-Procurement	0.0	0.0	0.0	0.0	0.0
333	QA, Envir & Safety Ofc	0.1	0.0	0.0	0.1	0.2
336	Supp Serv Div - Inspection	0.0	0.0	0.0	0.0	0.0
361	APS Project Direction	0.0	0.0	0.0	0.0	0.0
400	Ofc of Chief Fin Officer	61.6	0.0	0.0	12.7	74.3
401	Accounting	0.0	0.0	0.0	0.0	0.0
402	Ofc Chief Fin Ofcr-Data Entry	0.0	0.0	0.0	0.1	0.1
403	Budget Office	0.0	0.0	0.0	0.0	0.0
410	Human Resources Department	9.0	0.0	0.0	1.6	10.6
412	Affirm Action Program	0.1	0.0	0.0	0.2	0.2
501	Plant Fac & Serv-Bldg Maint	0.0	0.0	0.0	0.1	0.1
502	Plant Fac & Serv-Installation	0.0	0.0	0.0	0.0	0.0
503	Plant Fac & Serv-Grounds	0.0	0.0	0.0	0.0	0.0
504	Plant Fac & Serv-Custodial	0.0	0.0	0.0	0.0	0.0
505	Plant Fac & Serv-Waste Mgmt O	0.1	0.0	0.0	0.1	0.1
506	Plant Fac & Serv-Plant Mgr of	0.7	0.0	0.0	0.2	0.9
510	Plant Fac & Serv-Utility Syst	0.0	0.0	0.0	0.0	0.0
512	Plant Fac & Serv-Fac Plng/Eng	0.6	0.0	0.0	0.2	0.8
530	Site Mgrs Ofc-ANL West	0.1	0.0	0.0	0.0	0.1
531	Personnel-ANL West	0.1	0.0	0.0	0.0	0.1
532	Special Matls-ANL West	1.7	0.0	0.0	0.4	2.1
533	Accounting-ANL West	0.0	0.0	0.0	0.0	0.0
534	Purchasing-ANL West	0.0	0.0	0.0	0.0	0.0
535	Security - ANL West	0.0	0.0	0.0	0.0	0.0
536	Safety Staff-ANL West	0.2	0.0	0.0	0.0	0.2
537	Information Service-ANL West	0.0	0.0	0.0	0.0	0.0
538	Matls Handling-ANL West	0.1	0.0	0.0	0.0	0.1
550	Computer Appl & Serv - ANL-W	0.3	0.0	0.0	0.1	0.4
551	RAD Monitoring-ANL West	0.0	0.0	0.0	0.0	0.0
554	Machine Shop-ANL West	0.0	0.0	0.0	0.0	0.0
556	Site Engrg-ANL West	0.1	0.0	0.0	0.1	0.2
557	Plant Services-AW-Service Req	0.1	0.0	0.0	0.0	0.1
558	Plant Services-AW-Function	0.0	0.0	0.0	0.0	0.0
559	Food Services - ANL West	0.0	0.0	0.0	0.0	0.0
561	Ofc of Quality Assurance - AW	0.0	0.0	0.0	0.0	0.0
563	Talent Resource Pool-ANL West	0.0	0.0	0.0	0.0	0.0
730	Operating Work Projects	0.0	0.0	0.0	2.2	2.2
		---	---	---	---	---
SUBTOTAL		86.7	0.0	0.0	26.8	113.5
TOTAL		228.2	36.5	48.4	125.8	438.9

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

SUBJECT INDEX FOR CALENDAR YEAR 1989 (7/89)

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Argonne National Laboratory
Computing and Telecommunications Division
July 1989

COMPUTING CENTER SEMINAR

The Computing and Telecommunications Division (CTD) is offering a seminar. There is no charge for attending a seminar unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the seminar and notify attendees of any schedule changes. CTD will reschedule or cancel a seminar with fewer than six registrants *one week* prior to the scheduled date of the seminar.

UNICOS 5.0--WHAT'S DIFFERENT

Goals:	To learn about the new features and changes in UNICOS 5.0.
Length of seminar:	Two hours
Date and Time:	July 6, 1989 (Thursday), 2:00 p.m. to 4:00 p.m.
Location:	Building 221, Room A-261
Instructor:	Alan Hinds

COMPUTER-BASED TRAINING COURSES

CTD currently offers 50 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
----------	---

CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CICS Course

CICSP1	CICS Concepts and Facilities
CICSP2	CICS Application Programming

CMS Courses

CMS	Using CMS
REXXAP	REXX Application Programming
XEDIT	Using XEDIT

Cobol Course

COBOL2	VS COBOL II: Making the Transition
--------	------------------------------------

Office System Course

OFFICE	Office System Skills and Concepts
--------	-----------------------------------

PROFS Courses

PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
PGMJCL	JCL for Programmers
MVSUTL	Using IBM Utilities in Application Programming
SORTMRG	Using SORT/MERGE Utilities

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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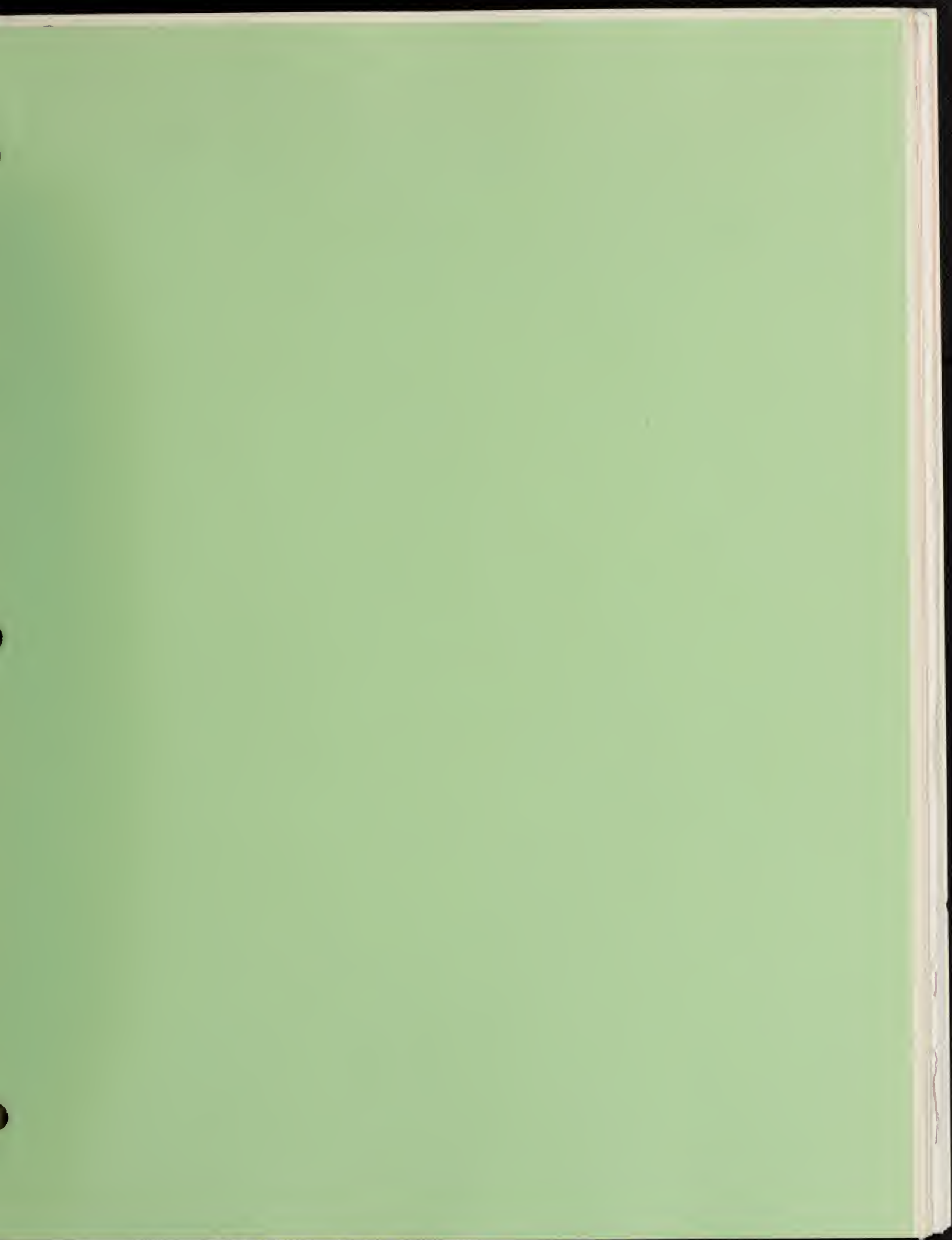
TSO Courses

CLSTPG	CLIST Programming
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting



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APPENDIX

Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien Hale	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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COMPUTING COMMENTS

MATHEMATICS AND COMPUTER SCIENCE CONNECTION MACHINE FORTRAN CLASS

The Mathematics and Computer Science Division is offering a two-day introductory class on Monday and Tuesday, August 21-22, 1989, on Fortran programming for the Connection Machine-2 (CM-2) computer. The CM-2 is a massively parallel single-instruction multiple-data computer with 16,384 processors.

The class will cover generic Fortran 8x array features, Connection Machine Fortran (CMF) specific features, and Parallel Instruction Set/Fortran 77 programming. The class will include lectures and laboratory work. Knowledge of Fortran 77 and Unix and some previous experience in programming other parallel computers is necessary.

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a \$25.00 charge per employee.

COMPUTING CLASS SCHEDULED FOR SEPTEMBER AND OCTOBER 1989

During October 1989, the Computing and Telecommunications Division (CTD) will offer nine classes and one demonstration. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will cancel this class if there are fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (on 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, and Cray UNICOS and of computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request and account on the VAX 8700 to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Using VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, and efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit MVS and UNICOS batch jobs; and to review MVS and UNICOS batch output.

Introduction to UNICOS (one 2 1/2-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material in the Unix file system and space management.

Introduction to UNICOS Shell Programming (one 2 1/2-hour session) is for new users who want basic information on Bourne UNICOS shell programming on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Bourne UNICOS shell programming.

Using the Cray X-MP/14 from the MVS Station (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray jobs from other ANL computing systems (including CMS and MVS).

Using the Cray X-MP/14 from the VAX/VMS Sataion (one 3-hour session) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the VAX/VMS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray jobs from VAX/VMS.

Program Development for VAX/VMS Users (two 3-hour sessions) introduces useful tools available to programmers on the DEC VAX 8700 computer. The class will include a lecture and hands-on use of (1) the symbolic debugger; (2) the Language Sensitive Editor (LSE), which is an enhanced editor that allows easy transition between the debugger and the Code Management System; and (3) the Performance Measurement and Evaluation (PME) package, which produces statistics useful in tuning programs. During the second session, the class participants will apply these tools to their own code. CTD is considering a \$100 charge for the class, which will apply as a credit for any future use of central computing.

MANAGEMENT INFORMATION SYSTEMS

PROPOSED FY1990 ADMINISTRATIVE COMPUTING PROJECTS

In accord with the established goals and procedures for the development of Laboratory management information systems, administrative computing proposals for FY1990 focus on the completion and enhancement of integrated systems already in place. A new multi-year proposal addresses the acquisition of a new, comprehensive materials management system. The Administrative Data Processing Oversight Committee (ADPO) is reviewing all these proposals for FY1990 and will decide by August 1989 which projects to recommend for funding. Funding decisions are based on the ben-

efits of projects to the Laboratory's administrative computing systems.

Proposals for Human Resource Systems include the second phase of the Integrated Medical System enhancements; the development of the Injury System as a sub-system of the Environment, Safety, and Health System; Employee Development and Benefits Systems to supplement the Payroll and Personnel Systems; and an Annual Review and Position Control System to take advantage of the recent Compensation Study information. A final proposal in this area would move toward the replacement of the Human Resource System by a system that uses the Integrated Personnel Management System database and the Information Expert product acquired with the Integrated Financial System.

Continuation of the Integrated Financial System project will involve the effort necessary (1) to provide the user environment for creating and extracting reports, (2) to develop budgeting systems that will replace the current systems, (3) to move check writing from the Entrex computer to the Accounts Payable system purchased from Management Science America, and (4) to examine Bright-View as a tool for the integration of personal computers into the financial systems. Implementation of the administrative systems in the Customer Information Control System (CICS) has resulted in a proposal for the purchase of a CICS debugging tool.

In the area of Materials and Plant Systems, a major proposal would continue work toward an Integrated Materials Management System. This new system would replace the aging materials systems now in operation and coordinate materials handling with the Integrated Financial System. In FY1990, the four-year proposal would issue a Request for Proposal, select and purchase the new system, and begin training. A second materials proposal would make the VAX Stores Order program available to all VAX users at the Laboratory.

Finally, the Library Information Management System proposal would purchase library and ANL publications records in the USMARC format (the U.S. industry-standard, machine-readable cataloging format) and install, test, and implement the selected system. The new Library Information Management System will result in faster and more efficient search and retrieval of information by scientific staff.

INTEGRATED FINANCIAL SYSTEM USER REPORTS DISTRIBUTED

On Wednesday, July 12, 1989, Cost Accounting began distributing the critical financial reports to users. The Integrated Financial System (IFS) Project Team is continuing its work to develop the remaining financial reports. Contact your Financial Reports Working Group (FRWG) representative for more information. FRWG representatives are Duane Bradley (Plant Facilities and Services), Joanne Day (High Energy Physics), Paul Eident (Chemistry), Sue Long (Support Services), Beverly Quinn (Office of the Chief Financial Officer), Beverly Woelfer (Engineering Research Administration), and Chairperson Pamela Styka (Energy, Environmental, and Biological Research Program Administration).

Since IFS's installation, the IFS Project Team has reported the Laboratory's financial position on time to the Department of Energy. Both the Office of the Chief Financial Officer and Management Information Services have increased resources to expedite the development of user reports. The FRWG members have categorized and prioritized over 160 reports to provide the financial users with the most critical reports as quickly as possible.

After IFS stabilizes, the Project Team will schedule Information Expert classes to teach users how to run IFS reports. The IFS Project Team will continue to distribute user reports during the stabilization period. Progress on all phases of the project will be reported at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

SAS INSTITUTE'S ETS SOFTWARE LICENSE EXPIRES

In the past, the Energy and Environmental Systems (EES) Division paid for the license for the Statistical Analysis System (SAS) Econometric Time Services (ETS) software (which has been available to all MVS users). On September 30, 1989, the contract for the SAS/ETS software on the IBM MVS system will expire, and EES will not renew it. Consequently, CTD will remove SAS/ETS from the MVS system. The base and statistical SAS procedures and SAS/Graph will continue to be available.

If you have a requirement for SAS/ETS, please contact the User Services Manager at extension 2-7419.

PERSONAL COMPUTING AND WORKSTATIONS

VISUAL ANALYSIS OF DATA WITH NCSA IMAGETOOL

Computer users with programs that store or represent results in a two-dimensional array may benefit from visually analyzing that data with the NCSAImage program for the Apple Macintosh II, ImageTool for the Sun computers, or the PCShow program for the IBM personal computers. These programs were developed at the National Center for Supercomputing Applications (NCSA) at the University of Illinois at Urbana-Champaign. They allow you to visualize your data as raster images on your screen. They also allow you to use different color palettes, to magnify images, and to animate multiple raster images. Other options (depending on the machine it is written for) also help analyze data.

These programs vary according to the machine on which you work. Table 1 provides a comparison of the programs.

Each program requires different hardware:

- NCSAImage for the Apple Macintosh requires:
 1. An Apple Macintosh II with 256-color capabilities.
 2. System software update Version 5.0 or later.
 3. More than one megabyte of random-access memory (RAM).
- PCShow for the IBM Personal Computer requires:
 1. An IBM PC, PC-AT, PC-XT, or PS/2.
 2. An enhanced Graphics Adapter (EGA), Video Graphics Adapter (VGA), or Revolution 512 (NO9) graphics card.
 3. A minimum of 320K memory.

4. PC DOS or MS DOS Version 2.0 or later installed on the machine. capable of displaying 256 colors simultaneously.
- ImageTool for the Sun requires:
 1. A Sun workstation with color hardware
 2. SUNVIEW (Visual/Integrated Environment for Sun workstations) installed on the machine.

Table 1: NCSA ImageTool Functions

Functions	Mac II	IBM PC	Sun
Modify and save color palettes	X		X
Magnify images	X	X	X
Use color, contour, 3-dimensional, shared data, dither plots, and XY graphs	X		X
Print contour, stored data, dither plots, and XY graphs	X		X
Animate multiple raster images	X	X	X

Documentation for these programs is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). You can try these programs on the Apple Macintosh II and the IBM Personal Computer in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142).

Apple Macintosh II and IBM Personal Computer users can obtain copies of these programs at the Document Distribution Counter or by Anonymous file transfer protocol (FTP) to NCSA via the Internet network. Sun users must obtain a copy of ImageTool by Anonymous FTP to NCSA. To copy the programs by FTP, enter (on a computer that is on the Internet network):

```
ftp 128.174.20.50
```

After you enter this command, the NCSA computer will prompt you for a username, to which you should respond:

```
anonymous
```

The NCSA computer will then prompt you for a password (your badge number). After logging in, issue the **dir** command to find the version of the program you want. Then use the **ftp get** command to copy the README file from the appropriate directory for your workstation, which will explain

which files you need, how to copy them to your machine, and how to construct an executable image from them.

There are several ways to create raster images for ImageTool programs. One way is by using ASCII characters that represent light intensities (which you can obtain directly from frame buffers, Charged Coupled Device Cameras, or Computed Tomography Scans). The ImageTool programs can display this kind of data without any conversion, when you properly indicate the dimensions of the two-dimensional array stored in the data file.

Programs that store data in two-dimensional arrays can also create images for the ImageTool programs. However, you must convert the arrays of numerical data to ASCII CHARACTER arrays of the same dimensions; then you can write each two-dimensional array to a separate file. If you want to create many images to reflect a change in time or the state of an object (for example, slices through a three-dimensional object), you can store each image with a filename that has a number as an extension to represent the order to display them. For example, to animate three frames of heat transfer through an object, you may want to name the files:

```
HEAT.001
HEAT.002
HEAT.003
```

If you are creating many files, it is faster to run the program that creates the images on a mainframe and to download the files to the computer on which you want to run the ImageTool program. You can transfer these files by using Kermit or a local or wide area network. For help with these methods, get the *Kermit User's Manual* or the NCSA Telnet document for your personal computer at the Document Distribution Counter. You can modify the following two Fortran samples to help convert arrays of floating point values to ASCII data files that are necessary for use with ImageTool.

The Fortran subroutine in Figure 1 assumes an array (20,50) of real numbers and converts the array

to a file of ASCII characters that the ImageTool programs can display as a raster image.

The Fortran subroutine in Figure 2 converts arrays (20,50) of real numbers to a file of ASCII characters that the ImageTool programs can display individually or animate together as a set. Figure 2 will create files on either the VAX or the Cray. To use this program in CMS, replace the period with a blank in statement "00005." To create larger or smaller raster images, vary the dimension sizes in the array declarations. You can write this code in several languages. If you use C or Pascal or need assistance modifying the above Fortran codes, contact Dave Lifka at extension 2-3251.

```

SUBROUTINE PROG1(RDATA,FILENAME)
REAL RDATA(20,50)
CHARACTER ROW(20)
CHARACTER*20 FILENAME
INTEGER TVALUE
C   RDATA CONTAINS ORIGINAL IMAGE DATA IN FLOATING POINT REPRESENTATION
C   AS THE RESULT OF THE USER APPLICATION
C   ROW IS THE CURRENT ROW OF THE NEWLY GENERATED RASTER IMAGE
OPEN(UNIT=3,NAME=FILENAME,STATUS='NEW',RECL=20)
DO 20 J=1,50
  DO 10 I=1,20
    TVALUE=INT(RDATA(I,J))
C   MAKE SURE THAT THE INTEGER VALUE OF
C   RDATA IS SCALED TO A VALUE BETWEEN 0 AND 255
    ROW(I)=CHAR(TVALUE)
00010  CONTINUE
    WRITE(3,15) (ROW(K),K=1,20)
00015  FORMAT(20A1)
00020  CONTINUE
  CLOSE(UNIT=3)
  RETURN
END

```

Figure 1: Sample Fortran Program for Creating Single Raster Images

KERMIT VERSION 2.32/A FOR IBM PERSONAL COMPUTER NOW AVAILABLE

Version 2.32/A of the Kermit file transfer and terminal emulation program is now available for the IBM Personal Computer. Kermit Version 2.32/A provides:

- Corrections to bugs present in earlier versions. Blank spaces required after GOTO labels are no longer necessary. "?Timeout" messages in Take files and macros are suppressed. Hang-up messages in Take files and macros are not displayed.
- A new command (**SET TERMINAL CLEAR-SCREEN**), which clears the old start-up screen by doing a terminal reset. This command

preserves the SET TERMINAL conditions, which are the analog of a VT102's setup values.

- Improved rollback buffer. In the past, only lines that scrolled off the top of the screen were saved in the screen rollback buffer. Now screens that are cleared (as in Hydra full screen emulation) are also saved in the buffer.

Kermit 2.32/A is distributed with commands developed locally to automate much of the login sequence for the Systems Network Architecture (SNA), the VAX Cluster, the Customer Information Control System (CICS), and the Materials CATALOG (MCAT). The commands work only onsite at Argonne and require an Asynchronous Data Interface (ADI) modem with the Machine Keyboard


```

SUBROUTINE PROG2(RDATA)
REAL RDATA(20,50)
CHARACTER ROW(20)
CHARACTER*20 FILENAME
INTEGER TVALUE
INTEGER IONE,ITEN,IHUND
CHARACTER*2 ONES,TENS,HUND
DO 900 K=1,100

C      CREATE NUMERICAL EXTENSION FOR EACH FILENAME
      IHUND=INT(K/100)
      ITEN=INT((K-(IHUND*100))/10)
      IONE=K-(IHUND*100)-(ITEN*10)
C      48 IS ADDED TO CONVERT THE INTEGER VALUES TO THE
C      CORRECT ASCII VALUES ON THE CRAY AND VAX,
C      240 IS USED INSTEAD IN CMS
      ONES=CHAR(IONE+48)
      TENS=CHAR(ITEN+48)
      HUND=CHAR(IHUND+48)
C      CONCATENATE THE EXTENSION OF YOUR FILENAME
00005  FILENAME='HEAT'/'.'/HUND//TENS//ONES
      OPEN(UNIT=3,NAME=FILENAME,STATUS='NEW',RECL=20)
      DO 20 J=1,50
        DO 10 I=1,20
          TVALUE=INT(RDATA(I,J))
C          MAKE SURE THAT THE INTEGER VALUE OF
C          RDATA IS SCALED TO A VALUE BETWEEN 0 AND 255
          ROW(I)=CHAR(TVALUE)
00010  CONTINUE
        WRITE(3,15)(ROW(L),L=1,20)
00015  FORMAT(20A1)
00020  CONTINUE
      CLOSE(UNIT=3)
00900  CONTINUE
      RETURN
      END

```

Figure 2: Sample Fortran Program for Creating Multiple Raster Images

Origination (MKO) option.

Kermit 2.32/A is also distributed with a new program for VAX users that enables the use of the numlock key as the VT-terminal gold key (see "VT-Terminal Keypad Definition for Kermit" in this *Newsletter*).

The Kermit Version 2.32/A diskette and the *Kermit User Guide* are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

TN3270 FOR THE SUN WORKSTATION

The tn3270 program (distributed by the University of California at Berkeley) is a modification

of the ARPAnet telnet user interface. The tn3270 program permits full screen connection from a Sun workstation to an IBM mainframe computer.

This software will perform IBM 3270 terminal emulation, which involves simulating the special IBM 3270 keyboard keys by mapping sequences of keystrokes from the ASCII keyboard into the appropriate IBM 3270 control strings. These mappings are terminal-dependent and specified in the description file `/etc/map3270` or in the environment variable `MAP3270`. The location for the description file may be different from the default for your system installation. Argonne defined the keystrokes for the Sun workstations and designed them to be consistent with other terminal emulators at the Laboratory. The list below shows the equivalent Sun workstation keys for the IBM 3270 functions:

IBM 3270 Function

Sun Equivalent Key(s)

PA1	CTRL-A 1 RETURN
PA2	CTRL-A 2 RETURN
FORWARD TAB	TAB KEY
BACKWARD TAB	R7 KEY
ENTER	RETURN KEY
CLEAR	ALTERNATE KEY
NEWLINE	LINE FEED KEY
INSERT MODE ON	R4 KEY
RESET (INSERT OFF)	R5 KEY
DELETE CHAR	DELETE KEY
ERASE EOF	R6 KEY
UP CURSOR	R8 KEY
RIGHT CURSOR	R12 KEY
DOWN CURSOR	R14 KEY
LEFT CURSOR	R10 KEY
HOME	R11 KEY
REDRAW	R13 KEY
PF1	F1 KEY
PF2	F2 KEY
PF3	F3 KEY
PF4	F4 KEY
PF5	F5 KEY
PF6	F6 KEY
PF7	F7 KEY OR R9 KEY
PF8	F8 KEY OR R15 KEY
PF9	F9 KEY
PF10	R1 KEY
PF11	R2 KEY
PF12	R3 KEY
PF13	ESC F1 KEY
PF14	ESC F2 KEY
PF15	ESC F3 KEY
PF16	ESC F4 KEY
PF17	ESC F5 KEY
PF18	ESC F6 KEY
PF19	ESC F7 KEY
PF20	ESC F8 KEY
PF21	ESC F9 KEY
PF22	ESC R1 KEY
PF23	ESC R2 KEY
PF24	ESC R3 KEY

can reactivate the host login session by pressing the RETURN key at the command prompt. To terminate a session, enter (at the command prompt)

quit

or

close

or logoff while you are within your session.

You can obtain the tn3270 software and the key definitions for the Sun workstation from your Sun systems administrator. For further information, review the "man pages" supplied with the tn3270 software or call Dave Leibfritz at extension 2-6596.

VT-TERMINAL KEYPAD DEFINITION FOR KERMIT

The Computing and Telecommunications Division has created a new program called "GOLDKEY.COM" for VAX users who use their IBM Personal Computers as VAX terminals. This program enables Kermit to use the numlock key on the IBM Personal Computer enhanced keyboard as the VT-terminal gold key. VAX users familiar with the VT-terminal keypad can use the IBM Personal Computer numeric keypad in the same convenient manner. This program is useful because the numlock key on the IBM Personal Computer is in the same position as the Gold key on a VT-terminal. Kermit alone cannot redefine the numlock key; but, by using "GOLDKEY.COM" first, you can redefine it in your Kermit keypad initialization file or by using the one provided with "GOLDKEY.COM" called "DECPAD.KEY." To use this tool, follow these instructions:

1. At the DOS prompt, enter:

A:\ GOLDKEY

2. To start Kermit, enter:

A:\ KERMIT

3. At the Kermit prompt, enter:

Kermit-MS> TAKE DECPAD.KEY

You can use the tn3270 program to access the central IBM computers by specifying the following commands:

```
tn3270 anlvm
```

or

```
tn3270 anlvm.ctd.anl.gov
```

If you do not specify a system name, tn3270 enters the local command environment, indicated by the prompt `tn3270>`. Then tn3270 accepts and executes all the commands of telnet.

After logging on to a remote host, you can enter the tn3270 command environment by entering a special escape sequence. This escape sequence is defined in the `/etc/map3270` file as control-C for Sun workstations. If there is no entry in the `/etc/map3270` file for your terminal type, the escape sequence is set to control-J. When escaping to the command environment, any host login session is still alive but temporarily suspended. You

After you follow the above steps, you can start your VAX session. If you want to use the numlock function after you leave your VAX session, press shift-numlock to restore it. Kermit "DECPAD.KEY" and "GOLDKEY.COM" are available on the Kermit diskettes at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies) or by downloading them directly from the VAX 8700 from the SYS.ANLCommon:[Public] Directory. You can access this Directory by entering:

```
SET DEFAULT SYS_PUBLIC
```

TELECOMMUNICATIONS NEWS

ANL UPGRADES ACCESS TO CHICAGO AREA HUB

Argonne has recently upgraded its connection to the University of Illinois at Chicago and thus to the Chicago Hub network (CHUBnet) to T1 service (1.544 megabits per second) from 56 kilobits per second. CHUBnet includes Argonne, the University of Illinois at Chicago, the University of Chicago, the University of Illinois at Urbana-Champaign, Northwestern University, the Illinois Institute of Technology, the University of Notre Dame, and Fermi National Accelerator Laboratory (FNAL). The link between Argonne and the University of Illinois at Chicago uses the new dual protocol router purchased from Cisco Systems. The dual protocol router is capable of simultaneous transfer of the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Digital Equipment Corporation (DECnet) data packets.

FNAL is connected to CHUBnet through Argonne. The Argonne/FNAL microwave and the Cisco router at ANL provide FNAL with TCP/IP and DECnet connectivity to CHUBnet.

The National Science Foundation has funded a new regional network, the Consortium for Institutional Cooperation (CICnet), which provides T1 links to the following Midwestern regional universities: the University of Wisconsin, Michigan State University, the University of Michigan, Ohio State University, the University of Minnesota, Indiana University, the University of Iowa, Northwestern University, the University of Chicago, the University of Illinois at Chicago, and the University of Illi-

nois at Urbana-Champaign. The CHUBnet/CICnet backbone is connected via T1 links to the University of Illinois at Urbana-Champaign (the university network and the National Center for Supercomputer Applications). The National Science Foundation network (NSFnet) connects to the regional network at both the University of Illinois at Urbana-Champaign and the University of Michigan at T1 speeds.

Since 1987, Argonne researchers have used the TCP/IP protocol to access NSFnet. With the purchase of the Cisco Systems dual protocol router, Argonne researchers will now be able to use the DECnet protocol in their scientific collaborations with regional institutions. By fall 1989, the DECnet protocol should be operational at participating regional institutions.

SPECIAL 60-DAY FREE TRIAL FOR SINGLE USER DECNET-BASED NJE CAPABILITIES

CTD and the Electronics Department have developed new software for Digital Equipment Corporation (DEC) VAXstations connected to the Laboratory-wide DECnet. This software provides access to computers and peripherals on the Laboratory-wide Network Job Entry (NJE) network and BITnet. The NJE services include (1) exchanging electronic mail with Argonne computers, computers in BITnet, and computers in networks with gateways to BITnet, (2) sending files to Argonne printers and graphic devices, (3) submitting jobs to VMS and IBM batch and print queues, and (4) transferring files among users. CTD will enroll VAX/VMS client systems in the BITnet network so that BITnet users can address those systems directly. To encourage new DEC VAXstation users to become familiar with the DECnet NJE software, CTD is offering a special 60-day free trial.¹

To use the NJE client services, users must first obtain the NJE client software from CTD and install it on their VMS system. Client users additionally must identify a "server" VAX DECnet computer with a peer-to-peer connection to the IBM MVS system. CTD will provide "server" capability with the central VAX 8700 computer. Regular monthly charges for NJE client services are based on where client systems are connected and several other factors, including physical links (ports and wiring), dedicated resources for client nodes (spooling are-

¹ Network Traffic charges still apply.

as), and network traffic. Table 2 lists the charges for a single user VMS workstation that participates in the Laboratory-wide NJE network.

Table 2: NJE Monthly Service Rates	
VAX NJE Client Service	Single User
Connection to divisional VAX	\$25.00
Connection to central VAX	\$25.00
Network Traffic	
Transfer per thousand card images	\$ 0.10

To obtain the NJE client software and to subscribe to DECnet-based NJE services, call Rich Raffenetti at extension 2-8497.

UPDATE ON THE MICROWAVE SYSTEM BETWEEN ANL AND FNAL

As reported in the December 1988 *Newsletter*, CTD installed a new microwave system between Argonne National Laboratory (ANL) and Fermi National Accelerator Laboratory (FNAL) during January 1989. The January 1989 installation moved the existing services to the new microwave, including the Magnetic Fusion Energy network (MFEnet) to 56 kilobits per second, the High Energy Physics network (HEPnet) to 56 kilobits per second, and the IBM Network Job Entry (NJE) to 56 kilobits per second.

Recently, CTD installed new voice and asynchronous terminal services between ANL and FNAL on the microwave system. Six voice channels now connect the Argonne Private Branch Exchange (PBX) to the FNAL Centrex system. Voice users dialing between ANL and FNAL automatically use the microwave system for their calls. Existing Illinois Bell tie lines between ANL and FNAL have been discontinued.

Asynchronous data connections between ANL and FNAL can now use the microwave system. Argonne offers three asynchronous circuits to the FNAL port selector. To access these data circuits onsite, dial extension 2-7707. The asynchronous protocol parameter settings for access to this number are 9600 bits per second, 8 bits, and no parity. Two asynchronous circuits allow FNAL users to access Argonne computers. The two asynchronous circuits from FNAL to ANL use machine keyboard origination that allows access to any Argonne com-

puter connected to the Argonne PBX. Anyone at Fermilab who has a terminal connected to any of the Fermilab port selectors can connect to Argonne by entering

ANL

and depressing the RETURN key. The port selector will display

GO

followed by a beep. Then, you are connected to the Argonne system. To access the Argonne system, alternately depress

- =

until you hear a beep and see the MKO banner. Then, you can enter the destination number and depress the RETURN key.

CTD has also connected its backbone local area network to FNAL's backbone local area network through a T1 (1.544 megabit per second) channel. The T1 link will run the dual protocols of the Digital Equipment Corporation network (DECnet) and the Transmission Control Protocol/Internet Protocol (TCP/IP). In August 1989, Argonne DECnet nodes that are now connected to FNAL and the High Energy Physics network will be rerouted through the T1 microwave channel connecting the ANL and FNAL backbone networks. The microwave system allows FNAL access to the Chicago hub universities (see "ANL Upgrades Access to Chicago Area Hub" in this *Newsletter*).

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,790 computers at over 1000 sites. Since the last *Newsletter* article in June 1989, the following universities and organizations have joined BITnet:

Central Statistical Office--Helsinki
CERIL--Paris
Cukurova University
Department of Energy--Germantown, Maryland

EARN OSI Network Operations Center--Amsterdam
 Federal University--Rio de Janeiro
 Italian Center for Aerospace Research--Naples
 Microelectronic Laboratory--Montpellier
 Military Institute of Engineering--Rio de Janeiro
 National Conservatory of Arts and Crafts--Paris
 Robert Debre Hospital--Paris
 Royal Roads Military College
 San Jose State University
 Tata Institute of Fundamental Research--Bombay
 Tatung Institute of Technology--Taiwan

For a complete list of organizations in the BIT-net network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

HELP BITNET NODES

VAX/VMS NEWS

CLEAR SCREEN UTILITY AVAILABLE ON VAX CLUSTER

CTD has written a "clear screen" utility to clear the screen and place the cursor at the top of the screen of a DEC VTnnn terminal or terminal emulator. For example, if your typing or application leaves several lines on the screen, you can enter CLS instead of pressing the "carriage return" key several times. You can imbed this utility in your interactive command procedures.

To use this utility, set up a symbol in your LOGIN.COM file by entering:

```
$ CLS == "@SYS_PUBLIC:CLEAR_SCREEN.COM"
```

Then enter CLS at the DCL prompt to clear the screen.

USING EDT EMULATION IN THE EVE EDITOR

This article describes an alternative to the EDT editor for editing in VAX/VMS that became available in VMS 5. For many years, EDT was the recommended VMS full screen editor. Now, the Extensible VAX Editor (EVE), a full-function editor that you can customize by using a powerful command set, is replacing EDT as the recommended editor for text editing in VAX/VMS. EVE includes an EDT emulator and also a WPS emulator (WPS is a word processing editor). EVE and the emulators are based on the VMS Text Processing

Utility (TPU), a high-performance tool for writing programs that manipulate text. Although EDT will continue to be available, the Digital Equipment Corporation (DEC) is not likely to develop any new features for it.

The new emulation of EDT in EVE is excellent; an earlier version of the emulation was incomplete. If you use EDT, you may benefit from changing to the EDT emulator in EVE for your editing. Some possible benefits are:

- The availability of many powerful EVE commands not available in the EDT editor to customize your EDT emulation environment.
- The ability to edit multiple files simultaneously in separate windows of your VTnnn terminal or VTnnn terminal emulator. You may cut text from a file in one window and paste it into the file in another window. You can control the number of windows and the window size.
- The display of system messages (to notify you about mail reception and other events) in a separate status window of your display and not in the text area.
- More efficient processing of your large files.

To use the EDT emulator, enter:

```
$ EDIT /TPU /INITIAL=init-filespec edit-filespec
```

You can define a symbol to make entering this command easier. For example, enter:

```
$ EDT = "EDIT /TPU /INITIAL=SYS$LOGIN:EVEINIT.EDT"
```

To define the symbol for future interactive sessions, place the symbol definition in your LOGIN.COM file. Place the initialization file, EVEINIT.EDT, in your login directory (SYS\$LOGIN). Then, to use the EDT emulator to edit the file "edit-filespec," enter:

```
$ EDT edit-filespec
```

The initialization file "init-filespec" sets up the EDT emulation if it contains the following EVE commands:

```
SET KEYPAD EDT
SET CURSOR BOUND
SET SCROLL MARGINS 15% 15%
```

The first command sets the keypad to EDT emulation and is the only command needed for EDT emulation. The next two commands make the EDT emulator environment better resemble EDT. One sets the cursor so that, when moving beyond the last character of the text on a line, the cursor moves to the beginning of the next line. Leave the command out if you prefer a "free" cursor. The other sets the scrolling margins to 15% of the window size for both the top and bottom margins so that your view of the file will always provide a few lines of text before and after the line with the cursor.

Exiting the EDT emulator is slightly different from exiting EDT. If you enter ^Z (press the CTRL and Z keys simultaneously), your session will end and the editor will write a new version of the file; if no changes were made, the ^Z exit will not write a new version of the file. You can obtain the EVE command prompt by pressing the DO key on a VT200-style keyboard. On a VT100-style keyboard, you can enter the GOLD and KP7 (or the keypad PF1 and numeric 7 keys) in sequence. To leave the editing session, enter either "exit" or "quit." To obtain help while you are still in your editing session, use the keypad PF2 key or the HELP key on VT200-style keyboards.

To learn more about EVE and its commands, use the computer-based training course EVECAI available on the VAX 8700. To start the course, enter:

```
$ RUN EVECAI
```

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new CTD documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

The *Single Line Telephone (STE) User Guide* (ANL/TM 470) explains how to use the standard single line telephone with the Argonne telephone system. The *Single Line Telephone* is STE (standard telephone equipment).

The *ITE 4 Telephone User Guide* (ANL/TM 471) describes the integrated terminal equipment (ITE) 4 single line electronic telephone and gives instructions for placing calls and using features. The ITE 4 can be used for simultaneous voice and data communications.

The *ITE 12 Telephone User Guide* (ANL/TM 472) describes the ITE 12A, ITE 12P, and ITE 12S telephones and gives instructions for placing calls and using the ITE features. The ITE 12A, 12P, and 12S telephones are electronic multiline sets that are compatible with data interface units for simultaneous voice and data communications.

The *ITE 24 Telephone User Guide* (ANL/TM 473) describes the ITE 24 telephone and gives instructions for placing calls and using the ITE features. The ITE 24 telephone is an electronic multiline set that is compatible with data interface units for simultaneous voice and data communications.

ERRATUM: CMS EXECS FOR HANDLING MAIL WHILE YOU ARE AWAY

In "CMS Execs for Handling Mail While You Are Away" in the July 1989 *Newsletter*, we gave an incorrect instruction for verifying that work was automatically scheduled. The instructions for scheduling work were correct. In the incorrect example, the term "execname" appeared instead of "id" in the use of the VMSCHEDULE QUERY and CANCEL commands. We are reprinting this part of the article with the correct information.

To inquire about a scheduled exec, enter:

```
VMSCHED QUERY id (LONG)
```

To cancel a scheduled exec, enter:

```
VMSCHED CANCEL id
```

where "id" is the name you assign to identify the request (maximum eight alphanumeric characters).

An added note: your PROFILE EXEC may cause the VACATION and TRANSRDR execs to fail. To avoid this failure, rename your PROFILE EXEC file (for example, PROFILE TEMP or PROFILE1 EXEC). After you have returned from travel or vacation and have canceled your VACATION or TRANSRDR exec request, rename the file PROFILE EXEC again.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING

There was no Computer Users Group meeting in July 1989.

WORKLOAD STATISTICS (MAY 31 THROUGH JUNE 29, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,263	1,262	482
Wylbur	1,664	1,657	421
MVS TSO	54	54	16
CICS	1,664	1,657	82
MVS Batch	2,106	2,100	650
VAX/VMS	413	416	214
Cray	424	456	141
All Systems	2,106	2,100	948

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	12,928	2,331	1,299	16,558	35,341.0	105.78
Wylbur	9,176	447	416	10,039	9,445.1	10.74
MVS TSO	153	0	0	153	183.6	0.64
CICS	64	43	16	123	0.0	4.45
VAX/VMS	6,847	599	443	7,889	13,098.6	116.27
Cray	281	1,958	1,070	3,309	1,193.4	1.81
IBM BATCH						
Class U	10,468	1,957	1,029	13,454	n.a.	39.04
Class W	18,399	1,547	868	20,814	n.a.	168.60
Class X	4	906	76	986	n.a.	73.11
Class Y	0	0	421	421	n.a.	30.21
Nonmain	13,591	1,463	723	15,777	n.a.	0.00
Total	42,462	5,873	3,117	51,452	n.a.	310.96
CRAY BATCH						
u	281	217	5	503	n.a.	1.81
w	3,032	522	207	3,761	n.a.	49.10
x	1,377	376	194	1,947	n.a.	133.62
y	1,955	413	377	2,745	n.a.	245.01
Total	6,645	1,528	783	8,956	n.a.	429.54
VMS BATCH						
W BATCH	583	153	63	799	n.a.	17.93
X BATCH	13	32	2	47	n.a.	9.15
Y BATCH	1	8	4	13	n.a.	25.53
Total	597	193	69	859	n.a.	52.61

INPUT/OUTPUT

Lines Printed	
Local	79,661,123
Remote	53,619,846
Fiche	35,729,265
Cards Punched-Local Only	9,252
Tape Mounts	7,784
Microfiche Developed	4,275
Microfiche Frames Developed	769,608

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	40	n.a.
Matrix 35mm Color	167	745
Matrix-8 x 10	17	17
Matrix-Negative	14	28
FR80 Film Plots		
35mm Black/White/Unsprocketed	81	668
35mm Black/White/Sprocketed	0	0
35mm Color	5	72
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	22,214
New Tapes Saved	1,317
Tapes Released	995
Datasets Exported to Tape	1,771
Datasets Imported from Tape	597

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (MAY 31 THROUGH JUNE 29, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	23.00	3.00	12.00		4.00	4.00	
Hrs Unavailable	26.23	2.60	14.08		8.03	1.51	
MTF/Unscheduled	86.72				173.44	173.44	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	19.00	3.00	11.00		1.00	4.00	
Hrs Unavailable	18.96	2.60	13.83		1.01	1.51	
MTF/Unscheduled	49.00				245.03	61.25	
RED IBM 3033							
All Shifts							
Interruptions	8.00	3.00	4.00			1.00	
Hrs Unavailable	4.51	1.66	2.51			0.33	
MTF/Unscheduled	715.48					715.48	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	8.00	3.00	4.00			1.00	
Hrs Unavailable	4.51	1.66	2.51			0.33	
MTF/Unscheduled	259.48					259.48	

AVAILABILITY STATISTICS, BY SERVICE (MAY 31 THROUGH JUNE 29, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	8.00	3.00	4.00			1.00	
Hrs Unavailable	4.51	1.66	2.51			0.33	
MTF/Unscheduled	715.48					715.48	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	8.00	3.00	4.00			1.00	
Hrs Unavailable	4.51	1.66	2.51			0.33	
MTF/Unscheduled	259.48					259.48	
NYLBUR							
All Shifts							
Interruptions	24.00	3.00	12.00		4.00	5.00	
Hrs Unavailable	28.03	2.68	14.78		8.33	2.23	
MTF/Unscheduled	76.88				172.99	138.39	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	19.00	3.00	11.00		1.00	4.00	
Hrs Unavailable	20.46	2.68	14.45		1.11	2.21	
MTF/Unscheduled	48.70				243.53	60.88	
MVS TSO							
All Shifts							
Interruptions	24.00	3.00	12.00		4.00	5.00	
Hrs Unavailable	27.93	2.68	14.78		8.33	2.13	
MTF/Unscheduled	76.89				173.01	138.41	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	19.00	3.00	11.00		1.00	4.00	
Hrs Unavailable	20.36	2.68	14.45		1.11	2.11	
MTF/Unscheduled	48.72				243.63	60.90	
JES3							
All Shifts							
Interruptions	23.00	3.00	12.00		4.00	4.00	
Hrs Unavailable	26.40	2.60	14.25		8.03	1.51	
MTF/Unscheduled	86.70				173.40	173.40	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	19.00	3.00	11.00		1.00	4.00	
Hrs Unavailable	19.13	2.60	14.00		1.01	1.51	
MTF/Unscheduled	48.97				244.86	61.21	
CICS							
All Shifts							
Interruptions	5.00	1.00			1.00	3.00	
Hrs Unavailable	3.00	0.26			1.11	1.61	
MTF/Unscheduled	179.25				717.00	239.00	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00	1.00			1.00	3.00	
Hrs Unavailable	3.00	0.26			1.11	1.61	
MTF/Unscheduled	65.25				261.00	87.00	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	21.00		17.00			4.00	
Hrs Unavailable	37.76		36.63			1.13	
MTF/Unscheduled	170.55					170.55	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9.00		5.00			4.00	
Hrs Unavailable	2.63		1.50			1.13	
MTF/Unscheduled	65.34					65.34	
CRAY							
All Shifts							
Interruptions	17.00	8.00	9.00				
Hrs Unavailable	24.33	15.20	9.13				
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00	1.00	9.00				
Hrs Unavailable	10.18	1.05	9.13				
MTF/Unscheduled							

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (MAY 31 THROUGH JUNE 29, 1989)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	\$1,016	\$565	\$0	\$916	\$2,497
272	ADVANCED PHOTON SOURCE	\$36	\$0	\$0	\$0	\$36
361	APS PROJECT DIRECTION	\$12	\$0	\$0	\$0	\$12
SUBTOTAL		\$1,064	\$565	\$0	\$916	\$2,545
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO, ENVIR, & MED RES DIV	\$2,235	\$26,026	\$86	\$2,383	\$30,730
149	BEM DIV-CTR FOR ENVIR RES	\$1,243	\$81	\$37	\$768	\$2,130
174	ENER/ENV/BIO RES PROG DIR	\$98	\$0	\$0	\$17	\$115
190	ENERGY & ENVIR SYST DIV	\$14,196	\$11,063	\$958	\$8,145	\$34,363
197	OFF OF INTER ENERGY DEV PROGS	\$329	\$0	\$0	\$67	\$396
246	TIS - NATL ENERGY SOFTWARE CTR	\$164	\$0	\$52	\$963	\$1,178
274	ENER/ENV/BIO RES PROG ADM	\$102	\$0	\$0	\$83	\$185
SUBTOTAL		\$18,366	\$37,171	\$1,133	\$12,426	\$69,097
ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	\$2,982	\$56	\$1,141	\$428	\$4,606
104	EBR-II PROJECT-ILLINOIS	\$6,442	\$286	\$2	\$2,271	\$9,001
107	CHEMICAL TECHNOLOGY DIVISION	\$1,346	\$64	\$0	\$54,952	\$56,362
112	REACTOR ANAL & SAFETY	\$13,804	\$624	\$5,949	\$7,369	\$27,746
114	MATLS & COMP TECH DIV	\$9,566	\$3,302	\$8	\$3,717	\$16,603
115	ENGINEERING-PHYSICS-ILLINOIS	\$1,435	\$357	\$1,111	\$1,111	\$3,290
116	ENGINEERING-PHYSICS-ILLINOIS	\$30,321	\$2,595	\$31,176	\$11,664	\$75,756
117	ENGINEERING-PHYSICS-ANL WEST	\$5,225	\$13	\$3,649	\$489	\$9,376
118	REACTOR EXP & EXAM DIV	\$5,797	\$284	\$129	\$312	\$6,522
119	ANALYTICAL LABORATORY ANL-WEST	\$0	\$0	\$0	\$36	\$36
171	ENGRG RES PROG DIR	\$4	\$0	\$0	\$86	\$90
178	FUSION POWER PROGRAM	\$252	\$17	\$0	\$92	\$362
211	ENG DIV-DESIGN ENG DEPT	\$49	\$0	\$0	\$2,665	\$2,714
269	CHEM TECH DIV-ANALYTICAL CHEM	\$74	\$0	\$0	\$40	\$114
271	ENGRG RES PROG ADMIN	\$271	\$0	\$0	\$192	\$464
SUBTOTAL		\$77,568	\$7,598	\$42,441	\$85,435	\$213,041
PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	\$1,759	\$2,946	\$2,928	\$2,252	\$9,886
109	PHYSICS DIV	\$2,363	\$516	\$342	\$1,231	\$4,452
120	CHEMISTRY DIV	\$1,584	\$1,083	\$102	\$1,685	\$4,454
136	INT PULSED NEUT SOURCE PROG	\$95	\$495	\$2,155	\$505	\$3,250
137	HIGH ENERGY PHYSICS DIV	\$597	\$2,906	\$4,955	\$1,280	\$9,737
139	DIV OF EDUCATIONAL PROGRAMS	\$827	\$0	\$0	\$143	\$970
145	MATHEMATICS & COMPUTER SCI DI	\$174	\$17	\$437	\$7,051	\$7,680
146	SCIENTIFIC APPLICATIONS RESEARCH	\$4	\$150	\$31	\$669	\$854
245	COMPUTING & TELECOMMUNICATIONS	\$13,221	\$0	\$905	\$5,075	\$19,202
247	CTD - COMMUNICATIONS SERVICES	\$1,823	\$0	\$0	\$1,259	\$3,082
273	PHYSICAL RESEARCH PROGRAM ADM	\$90	\$0	\$0	\$46	\$136
SUBTOTAL		\$22,538	\$8,113	\$11,856	\$21,197	\$63,704
EXTERNAL						
750	ACK	\$312	\$2	\$79	\$200	\$592
751	FERMI NATIONAL LABORATORY	\$828	\$0	\$0	\$851	\$1,680
752	NAVY	\$8,062	\$0	\$0	\$5,698	\$13,760
753	MORGANTOWN ENERGY TECH CTR	\$17	\$0	\$0	\$650	\$667
754	DOE-CH AT ANL	\$0	\$0	\$0	\$9	\$9
757	ACK	\$288	\$0	\$0	\$664	\$952
760	ABBOTT LABORATORIES	\$12	\$202	\$2,142	\$0	\$2,356
762	STATE UNIVERSITY OF NEW YORK	\$8	\$15	\$37	\$24	\$84
763	GENERAL ELECTRIC COMPANY	\$0	\$0	\$0	\$0	\$0
766	BECHTEL NATIONAL INC.	\$1	\$338	\$712	\$7,842	\$8,892
SUBTOTAL		\$9,528	\$557	\$2,970	\$15,938	\$28,992
OPERATIONS						
143	SUPP SERV DIV - ELEC DEPT	\$92	\$17	\$0	\$303	\$411
148	HUMAN RESOURCES-HEALTH DEPT	\$1,025	\$0	\$0	\$330	\$1,354
150	PLANT FAC & SERV - SPEC MATLS	\$198	\$0	\$0	\$130	\$328
161	TECH INFO SERVICES DEPT	\$1,566	\$0	\$0	\$1,698	\$3,265
201	OFFICE OF THE DIRECTOR	\$482	\$0	\$0	\$457	\$939
202	OFC OF CHIEF OPER OFCR	\$96	\$0	\$0	\$144	\$240
210	SUPP SERV DIV - CENT SHOPS	\$172	\$0	\$0	\$82	\$254
216	SUPPORT SERVICES DIVISION	\$147	\$0	\$0	\$61	\$208
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$36	\$36
232	PLANT FAC & SERV-SECURITY	\$377	\$0	\$0	\$114	\$491
234	SUPP SERV DIV-OHS-HEALTH PHY	\$242	\$0	\$0	\$90	\$332
235	SUPP SERV DIV-ENV SAFE HEALTH	\$900	\$0	\$0	\$369	\$1,269
236	PLANT FAC & SERV-FIRE DEPT	\$0	\$0	\$0	\$36	\$36
260	SUPP SERV DIV-GRAPHIC ARTS	\$169	\$16	\$0	\$1,011	\$1,195
275	OFFICE OF PUBLIC AFFAIRS	\$504	\$0	\$0	\$53	\$557
276	OFC PUB AF - MOTN PIC UNIT	\$31	\$0	\$0	\$3	\$34
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$285	\$285
315	SUPP SERV DIV-MATLS & SERV	\$3,944	\$0	\$0	\$630	\$4,574
316	PLANT FAC & SERV-VEH MAINT	\$7	\$0	\$0	\$93	\$99
317	PLANT FAC & SERV-DRIV & RIG SER	\$14	\$0	\$0	\$36	\$50
319	SUPP SERV DIV-TRAVEL OFC	\$298	\$0	\$0	\$36	\$334
322	SUPP SERV DIV-PROCUREMENT	\$41	\$0	\$0	\$36	\$77
333	QA, ENVIR & SAFETY OFC	\$82	\$0	\$0	\$104	\$186
400	OFC OF CHIEF FIN OFFICER	\$58,862	\$0	\$0	\$17,970	\$76,832
401	ACCOUNTING	\$0	\$0	\$0	\$36	\$36
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$12	\$0	\$0	\$125	\$137
403	BUDGET OFFICE	\$0	\$0	\$0	\$36	\$36
410	HUMAN RESOURCES DEPARTMENT	\$8,231	\$0	\$0	\$1,450	\$9,681
412	AFFIRM ACTION PROGRAM	\$72	\$0	\$0	\$161	\$233
501	PLANT FAC & SERV-BLDG MAINT	\$36	\$0	\$0	\$107	\$144
502	PLANT FAC & SERV-INSTALLATION	\$0	\$0	\$0	\$36	\$36
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$36	\$36
504	PLANT FAC & SERV-CUSTODIAL	\$0	\$0	\$0	\$36	\$36
505	PLANT FAC & SERV-WASTE MGMT O	\$4	\$0	\$0	\$71	\$75
506	PLANT FAC & SERV-PLANT MGR OF	\$246	\$0	\$0	\$74	\$320
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$36	\$36
512	PLANT FAC & SERV-FAC PLNG/ENG	\$433	\$0	\$0	\$169	\$601
530	SITE MGRS OFC-ANL WEST	\$35	\$0	\$0	\$37	\$72
531	PERSONNEL-ANL WEST	\$52	\$0	\$0	\$36	\$88
532	SPECIAL MATLS-ANL WEST	\$2,064	\$0	\$0	\$568	\$2,632
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$36	\$36
534	PURCHASING-ANL WEST	\$12	\$0	\$0	\$36	\$48
535	SECURITY - ANL WEST	\$20	\$0	\$0	\$36	\$56
536	SAFETY STAFF-ANL WEST	\$180	\$0	\$0	\$38	\$218
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$36	\$36
538	MATLS HANDLING-ANL WEST	\$90	\$0	\$0	\$36	\$126
550	COMPUTER APPL & SERV - ANL-W	\$113	\$0	\$0	\$37	\$150
551	RAD MONITORING-ANL WEST	\$8	\$0	\$0	\$36	\$44
554	MACHINE SHOP-ANL WEST	\$25	\$0	\$0	\$36	\$61
556	SITE ENGRG-ANL WEST	\$115	\$574	\$0	\$44	\$734
557	PLANT SERVICES-AW-SERVICE REQ	\$102	\$0	\$0	\$36	\$138
558	PLANT SERVICES-AW-FUNCTION	\$4	\$0	\$0	\$0	\$4
559	FOOD SERVICES - ANL WEST	\$0	\$0	\$0	\$36	\$36
561	OFC OF QUALITY ASSURANCE - AW	\$4	\$0	\$0	\$37	\$41
563	TALENT RESOURCE POOL-ANL WEST	\$0	\$0	\$0	\$36	\$36
730	OPERATING WORK PROJECTS	\$0	\$0	\$0	\$-24,370	\$-24,370
SUBTOTAL		\$81,155	\$607	\$0	\$3,267	\$85,029
TOTAL		\$210,220	\$54,611	\$58,400	\$139,178	\$462,408

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex			
(Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex			
(Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second			
(Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second			
(Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
September and October 1989

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering nine classes and one demonstration. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will cancel this class if there are any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Dates and Times: September 11, 1989 (Monday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-261

Instructor: Fred Moszur

USING COMPUTER-BASED TRAINING

Goals: To learn how to use computer-based training (CBT) courses in CMS.

Length of Class: One hour

Dates and Times: September 13, 1989 (Wednesday), 9:30 a.m. to 10:30 a.m.

Location: Building 221, Room A-261

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336)
Recommended Documentation for Computer Users at ANL (ANL/TM 379)
Guide to Telecommunications at ANL (ANL/TM 422)

Instructor: Dave Leibfritz

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Dates and Times: September 12, 1989 (Tuesday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for MVS batch processing. To learn about the MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for batch execution.

Length of Class: One 3-hour session

Dates and Times: September 19, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

INTRODUCTION TO UNICOS

Goals: To learn the basics of the Cray UNICOS file system and space management, as well as basic Unix commands.

Length of Class: One 2 1/2-hour session

Dates and Times: September 21, 1989 (Thursday), 1:30 to 4:00 p.m.

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield

USING VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.

Length of Class: One 3-hour class

Dates and Times: September 19, 1989 (Tuesday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

INTRODUCTION TO UNICOS SHELL PROGRAMMING

Goals: To learn the basics of programming the Bourne Shell in UNICOS.

Length of Class: One 2 1/2-hour session

Dates and Times: September 26, 1989 (Tuesday), 1:30 p.m. to 4:00 p.m.

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System* (0-8053-8915-6)
UNICOS Primer

Instructor: Tom Canfield

USING THE CRAY X-MP FROM THE MVS STATION

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the MVS front-end station so that you can submit Cray jobs from CMS, MVS, and VAX/VMS systems.

Prerequisite: "Introduction to UNICOS Shell Programming" classes or equivalent experience Unix.

Length of Class: One 3-hour session

Dates and Times: September 28, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to UNICOS* (ANL/TM 460)

Instructor: Pete Bertoncini

USING THE CRAY X-MP FROM THE VAX/VMS STATION

- Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the VAX/VMS front-end station so that you can submit and manage Cray batch jobs, and how to use the Cray station for interactive Cray sessions.
- Prerequisite: "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.
- Length of Class: One 3-hour session
- Dates and Times: September, 29, 1989 (Friday) 1:30 p.m. to 4:30 p.m.
- Location: Building 221, A-216
- Suggested Reading: *Guide to UNICOS* (ANL/TM 460)
- Instructor: Tom Canfield

PROGRAM DEVELOPMENT FOR VAX/VMS USERS

- Goals: To learn how to use program development tools in VMS (including the symbolic debugger, the Language Sensitive Editor, and the Performance Measurement and Evaluation package) and to apply these tools in developing your own programs.
- Length of Class: Two 3-hour sessions
- Dates and Times: October 26, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
October 31, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.
- Location: Building 221, Room A-216
- Instructor: Dave Lifka
- NOTE: CTD is considering a \$100 charge for the class, which will apply as a credit for any future use of central computing.

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
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Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SOLDB2	Using SQL/QMF (DB2): Basic Reporting
SOLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQ LDS2	Using SQL/QMF (DS): Basic Reporting
SQ LDS3	Using SQL/QMF (DS): Advanced Reporting

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 20

NUMBER 9

SEPTEMBER 1989

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COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien Hale	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCasse at 312-972-5415.

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COMPUTING COMMENTS

NEW COMPUTER PROTECTION POLICY ISSUED

To comply with DOE Order 1360.2A and the Computer Security Act of 1987 (both of which became effective last year), Argonne has issued a new *ANL Computer Protection Policy* (June 28, 1989), which replaces the old *Policy* in effect since February 15, 1984. A copy of the new *ANL Computer Protection Policy* is appended to this *Newsletter*.

In addition to complying with the new regulations, the new *Policy* (1) recognizes that computer protection is everyone's responsibility, (2) draws on experience with the previous *Policy* to make the new *Policy* more workable, (3) clarifies the requirements of the previous *Policy*, and (4) reflects ANL organizational changes.

Major changes are:

- A "sensitive" computer system is defined as a computer system that processes sensitive applications or sensitive data or is a significant computer system.
- A "significant" computer system is defined as one with a computing capacity requiring it to be reported in the *DOE Information Technology Resources Long-Range Plan*.
- The requirements of the *ANL Procedure for Reporting Computer Security Incidents* (see the February 1989 *Newsletter*) are part of the new *Policy*.
- Computer security education and awareness training is necessary for all employees who work with computers.
- Risk assessments and protection plans are necessary for all computers.
- Random checks of computer files are necessary to avoid misuse and abuse of computer privileges (for example, having games, running a private business, keeping non ANL-related mailing lists or other unauthorized material on any ANL computer).

- The Computer Protection Program Manager must conduct regular inspections for adherence to the new *Policy*.

Beginning in September 1989, the Computer Protection Program Manager will offer workshops for Computer Protection Program Representatives. The first workshop will be "Computer Security Education and Awareness Training Requirements"; later workshops will focus on the requirements of the *ANL Computer Protection Policy*. In the future, we plan to hold workshops for both the Computer Protection Program Representatives and the Assistant Computer Protection Program Managers on how to assess risks according to the new DOE risk assessment guidelines.

COMPUTING CLASSES SCHEDULED FOR SEPTEMBER AND OCTOBER 1989

During September and October 1989, the Computing and Telecommunications Division (CTD) will offer nine classes and one demonstration. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, and Cray UNICOS and of computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become

familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Using VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; using the VMS system debugger, the runtime library, and system services; and programming VAX Fortran.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit MVS and UNICOS batch jobs; and to review MVS and UNICOS batch output.

Introduction to UNICOS (one 2 1/2-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system and space management.

Introduction to UNICOS Shell Programming (one 2 1/2-hour session) is for new users who want basic information on Bourne UNICOS shell programming on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Bourne UNICOS shell programming.

Using the Cray X-MP/14 from the MVS Station (one 3-hour session) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray jobs from other ANL computing systems (including CMS and MVS).

Using the Cray X-MP/14 from the VAX/VMS Station (one 3-hour session) is for Cray X-MP/14 users who want to learn how to submit jobs and to

manage Cray files from the VAX/VMS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray jobs from VAX/VMS.

Program Development for VAX/VMS Users (two 3-hour sessions) introduces useful tools available to programmers on the DEC VAX 8700 computer. The class will include a lecture and hands-on use of (1) the symbolic debugger; (2) the Language Sensitive Editor (LSE), which is an enhanced editor that allows easy transition between the debugger and the Code Management System; and (3) the Performance Measurement and Evaluation (PME) package, which produces statistics useful in tuning programs. During the second session, the class participants will apply these tools to their own code. CTD will charge \$100 for the class, which will apply as a credit for any future use of central computing.

CMS NEWS

PLAN TO RACF-PROTECT ALL CMS MINIDISKS

CTD is preparing to use a new method for protecting CMS minidisks that will give users greater control for authorizing shared access. CMS users will no longer need to establish passwords for sharing minidisks. Instead, they will issue commands that identify which CMS users have read or write access privileges. CMS users who share those minidisks will no longer need to provide a password when they issue a **LINK** command prior to **ACCESSING** a minidisk. This method uses the Resource Access Control Facility (RACF), which already protects CMS, Wylbur, and CICS logons and MVS datasets.

Beginning on Monday, November 6, 1989, CTD plans to RACF-protect all new minidisks allocated for CMS users. On Monday, January 8, 1990, CTD plans to RACF-protect all existing unprotected minidisks. The default protection will prevent read-and-write access by any user except the owner. CMS users can RACF-protect their minidisks ahead of time.

For details on setting up access privileges for minidisks, see "Using RACF To Control Minidisk Access" in this *Newsletter*. User Services will

work with cost centers or other groups of users who wish to set up group access to minidisks through RACF. For more information, contact the User Services Manager at extension 2-7419.

USING RACF TO CONTROL MINIDISK ACCESS

CMS users can RACF-protect existing minidisks with the **RACSERVE** command:

```
RACSERVE RDEFINE cmsuser.vaddr
```

where "cmsuser" is the name of your CMS virtual

machine and "vaddr" is any assigned virtual address in your CMS virtual machine (for example, 191). After you issue the **RACSERVE** command, only you will be able to access your minidisk. However, you can enter RACF commands to grant or deny permission for other users to access data on your minidisk or to list the authorized users of a minidisk.

Enter the **RACF** command to start a RACF command session. Enter the **END** command to terminate a RACF command session. Table 1 shows the RACF subcommands to update RACF-protected minidisk profiles.

Table 1: RACF Subcommands To Update RACF-Protected Minidisk Profiles

FUNCTION	COMMANDS
To permit read authority to all users	RACF RALTER VMMDISK cmsuser.vaddr UACC(READ) END
To permit read authority to selected users	RACF PERMIT cmsuser.vaddr CLASS(VMMDISK) ID(racfuser1 racfuser2 ...) ACCESS(READ) END
To permit update (write) authority to selected users	RACF PERMIT cmsuser.vaddr CLASS(VMMDISK) ID(racfuser1 racfuser2 ...) ACCESS(UPDATE) END
To deny access to selected users	RACF PERMIT cmsuser.vaddr CLASS(VMMDISK) ID(racfuser1 racfuser2 ...) ACCESS(NONE) END
To remove selected users from the list	RACF PERMIT cmsuser.vaddr CLASS(VMMDISK) ID(racfuser1 racfuser2 ...) DELETE END
To verify the access list on your own minidisk	RACF RLIST VMMDISK cmsuser.vaddr AUTHUSER END
To verify your access authority on another user's minidisk	RACF RLIST VMMDISK cmsuser1.vaddr END
where "cmsuser" refers to the name of your CMS virtual machine and "racfuser1," "racfuser2," etc. refer to the RACF userid of other CMS users. The RACF userid is Bnnnnn, even when CMS userids include an account alias suffix of the form Bnnnnna.	

CRAY NEWS

HPM: THE CRAY HARDWARE PERFORMANCE MONITOR

The Hardware Performance Monitor (HPM) is a Cray utility program that allows users to monitor the performance of their programs executing on the Cray X-MP. HPM does not require special recompilation and works with programs written in any language available under the UNICOS operating system. HPM actually runs the user's program while it accumulates statistics for the reports. When the program is finished, the HPM report is written to **stderr**. A more detailed description of the use of HPM and a discussion of the various HPM reports is in the *UNICOS Performance Utilities Reference Manual* (SR-2040 B), available at the Documentation Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). The format of the command is given by:

```
hpm -g n program args
```

where "n" is the hardware monitor group used in the performance reports. There are four different hardware monitor groups you can specify:

- 0 Execution Summary
- 1 Hold Issue Conditions
- 2 Memory Activity
- 3 Vector Events and Instruction Summary

A program, **wave.f** (previously compiled with the **cft77** command and linked with other subroutines by using the **segldr** command), produces the executable module, **wave**. To get an execution summary that will compute Mflops (millions of floating point operations per second), issue the following command:

```
hpm -g 0 wave >output 2>hpm_report
```

To examine the HPM report, enter:

```
cat hpm_report
```

Table 2 shows the display that appears. Note that **wave** took 0.85 seconds to run and was computing at a rate of 81.63 Mflops (approximately one-third of the theoretical maximum of 235 Mflops for the Cray X-MP/14). The performance level of this program is fairly respectable considering that it was not written with the intent of demonstrating the optimum performance of the Cray but rather to produce a meaningful scientific result.

It is easy to run the other HPM report groups. For instance, these reports might give indications of poor performance due to excessive memory bank conflicts that you can easily fix by re-dimensioning arrays. HPM reports reflect overall machine performance while a program is executing; the results may vary slightly between runs. For this reason, it is advisable to make several HPM runs on a program.

Table 2: HPM Report Display

STOP			
Group 0:	CPU seconds	:	0.85
	Million inst/sec (MIPS)	:	16.00
	Avg. clock periods/inst	:	7.36
	% CP holding issue	:	82.33
	Inst.buffer fetches/sec	:	0.09M
	Floating adds/sec	:	47.54M
	Floating multiplies/sec	:	33.51M
	Floating reciprocal/sec	:	0.58M
	I/O mem. references/sec	:	0.00M
	CPU mem. references/sec	:	83.33M
	Floating ops/CPU second	:	81.63M
	CP executing	:	100323757
	Instructions	:	13638787
	CP holding issue	:	82598638
	Inst.buf. fetches	:	78423
	F.P. adds	:	40520000
	F.P. multiplies	:	28562434
	F.P. reciprocals	:	496500
	I/O references	:	148
	CPU references	:	71024720

MANAGEMENT INFORMATION SYSTEMS

LONG-RANGE PLAN AVAILABLE IN SEPTEMBER 1989

A *Plan for Administrative Computing at ANL FY1990 through FY1992*, the ninth in a series of long-range planning documents published by Management Information Systems (MIS), will be available in September 1989. The *Plan* includes a brief description of the status of projects approved for funding in the last fiscal year and an overall view of the projects approved for funding in the current planning period. Other chapters outline the goals and strategy MIS has adopted for administrative computing and the management guidelines followed by the Administrative Data Processing Oversight (ADPO) Committee in determining their funding priorities. Further chapters provide summaries of the administrative computing projects proposed for the planning period and their costs. Appendices provide detailed goals for administrative computing, a full format for submission of a proposal to the ADPO Committee, and extensive synopses of all administrative computing systems in use at the Laboratory.

The new *Plan* is part of a series that has created an historical record of the Laboratory's efforts to analyze and review the administrative computing systems as they affect all segments of the Laboratory. A second function of the series has been to serve as a focus for the planning of information systems and a guide for their development. The *Plan* is a resource for any organization or individual who is currently using or plans to use the Laboratory's official administrative data.

INTEGRATED FINANCIAL SYSTEM USER REPORTS DISTRIBUTED

On Monday, August 7, 1989, Cost Accounting began distributing the critical financial reports to users. Since cutting over to the new system, the Integrated Financial System (IFS) Project Team has reported the Laboratory's financial status on time to the Department of Energy. Both the Office of the Chief Financial Officer and Management Information Services have increased resources to expedite the development of user reports to provide the most critical reports as quickly as possible.

The Project Team developed and ran programs for retroactive rate adjustments in the scientific divisions. Also, the Project Team reestablished and corrected IFS's commitment and encumbrance data. The Integrated Financial System users should check their August 1989 reports. If you suspect any errors in cost, commitments, or encumbrances, notify Cost Accounting in the usual manner. Send suggested changes to the report format to your Financial Reports Working Group (FRWG) representative. The FRWG will collect the changes and forward them to the IFS Project Team.

Progress on all phases of the IFS project will be reported at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

PERSONAL COMPUTING AND WORKSTATIONS

NEW FILE AND PRINT SERVICES FOR APPLE MACINTOSH USERS

Starting this month, CTD will offer a series of new network services to AppleTalk users. This article contains a general overview of AppleTalk networking at the Laboratory and what new Apple Macintosh services CTD will offer. Additional information appears in other articles in this *Newsletter*.

Apple Computer, Inc. provides a local area network (LAN) architecture named AppleTalk. (We refer to each separate AppleTalk LAN as a LocalTalk.) By using gateways (such as the Kinetics FastPath), you can attach LocalTalk LANs to the Laboratory-wide Ethernet. This connection allows computers on one LocalTalk network to access resources on other LocalTalk networks. You can also connect Apple Macintoshes directly to the Laboratory-wide Ethernet with EtherTalk cards.

AlisaTalk (from Alisa Systems Inc.) is a software package in VAX/VMS that uses AppleTalk protocols. It provides two primary components: AlisaShare and AlisaPrint. AlisaShare is a file server for Apple Macintosh users. AlisaPrint is a PostScript printer server.

AlisaShare enables Apple Macintoshes to access virtual disk drives of unlimited capacity on

the CTD VAX cluster disks. The only software required on an Apple Macintosh is AppleShare, which is distributed with the Apple Macintosh system software. By using the Chooser on an Apple Macintosh, you can select an AlisaShare disk and then use it like any other Apple Macintosh disk. For example, you can copy files, create folders, and launch applications. Users have complete access and control of their disks from the Apple Macintosh. To protect your data, CTD backs up all disks at the central site daily.

AlisaPrint provides print services for PostScript printers like Apple LaserWriters. You can attach the PostScript printer to a LocalTalk network or to a terminal server that uses DEC's Local Area Transport (LAT) protocol. Print requests can originate from AppleTalk Macintoshes or central mainframes: Cray XMP (via the VAX/VMS Supercomputer Gateway), IBM (via NJE), and the central VAX cluster (via the VAX/VMS **PRINT** command). AlisaPrint prints PostScript files and converts text files to PostScript format for printing at a remote PostScript printer. Also, AlisaPrint provides flag pages at the beginning of each print job and file for easy owner identification. To learn more about using AlisaPrint, see "Apple Macintosh Users Gain Network Access to Graphic Arts Typesetter and Color Printer" in this *Newsletter*.

APPLE MACINTOSH USERS GAIN NETWORK ACCESS TO GRAPHIC ARTS TYPESETTER AND COLOR PRINTER

Apple Macintosh users at ANL who needed typeset quality or color output have been accustomed to bringing diskettes to Building 222 for processing. Now, Apple Macintosh users need not leave their offices (except perhaps to pick up their documents or transparencies). Graphic Arts and CTD have begun using the AlisaTalk product on the central VAX cluster to accept PostScript output for the Linotype L300P typesetter, the QMS color laser printer, and a 11-by-17 laser printer.

Apple Macintosh users who need network access to these Graphic Arts output devices must:

1. Either reside on an AppleTalk network with a Kinetics or Gatorbox gateway to the Laboratory-wide Ethernet or reside directly on the Laboratory-wide Ethernet with an Ethernet board installed in an Apple Macintosh II or Apple Macintosh SE.
2. Have the Apple LaserWriter driver and Apple LaserWriter prep file Version 6.0 installed in your Apple Macintosh system folder and accessible through the \Chooser. You can obtain these files from the AlisaShare public volume.
3. Have specified a blanket account or established a service request with Graphic Arts to cover the Graphic Arts charges.

To send Apple Macintosh output to a Graphic Arts service, users must:

1. Open the Chooser:
 - a. Specify your badge number as the user name.
 - b. Select the Apple LaserWriter icon.
 - c. Select the PUBLIC ALISATALK AppleTalk zone.
 - d. Select the appropriate device named in the Apple LaserWriter table.
2. Open your Apple Macintosh application program (for example, Word or MacDraw II):
 - a. Select the appropriate printer setup parameters.
 - b. Select the print capabilities and print.
3. Arrange with Graphic Arts to pick up or deliver your output.

In the near future, it will be possible to get to these queues from non-Macintosh computers (IBM, Cray, and VAX). For more information on Apple Macintosh access to Graphic Arts output devices, call Lee Wagar at extension 2-5603.

ALISATALK EXTENDS NJE PRINTING TO APPLETALK NETWORKS

Now Macintosh AppleTalk users can arrange with CTD to define AlisaTalk print queues that enable users to send mainframe graphics to PostScript printers attached to AppleTalk networks in their own building.

Users of central VAX cluster, IBM services, and distributed VAX computers are already able to create graphics and text files in the PostScript page description language. The Laboratory-wide NJE network enables users to send PostScript output for printing at remote Apple LaserWriters attached to DEC terminal servers, distributed VAX computers, and RADS stations. However, while this capability was often quite useful, it has not always been convenient (especially when users had access only to laser printers in Building 221). Now, by using AlisaTalk, users can send these files directly to PostScript printers on AppleTalk.

Prerequisites for using AppleTalk laser printers from the Laboratory-wide NJE network are:

1. An Apple LaserWriter or other PostScript printer attached to an AppleTalk network that uses a Kinetics FastPath or Gatorbox gateway to connect to the Laboratory-wide Ethernet.
2. An AlisaTalk queue and NJE printer definition for an Apple LaserWriter on your AppleTalk network.

Since AlisaTalk resides on the VAX cluster, AppleTalk printers defined to AlisaTalk will appear to NJE users to reside on node ANLCV1.

You can use the hardcopy procedure on the CMS, VAX cluster, and distributed VAXes with NJE services to send PostScript graphics files to printers defined to AlisaTalk by specifying the address as:

```
ANLCV1.printer (in MVS)
ANLCV1::printer (in VAX/VMS)
```

VAX 8700 users may also use the VMS **PRINT** command.

AlisaTalk queues output for AppleTalk printers while the printer is busy or otherwise unavailable and sends output when the printer becomes ready.

To define your AppleTalk printer for access from the Laboratory-wide NJE network, contact Barry Miller at extension 2-6808.

NCSA TELNET FOR IBM PERSONAL COMPUTERS WITH FULL SCREEN CAPABILITIES NOW AVAILABLE

CTD has begun to distribute a new version of the National Center for Supercomputing Applications (NCSA) Telnet program for IBM Personal Computers. This new Telnet (known as Version 2.2D and 2.2TN) is a revision of NCSA Telnet by Clarkson University to reflect Clarkson's latest enhancements of NCSA Telnet. Version 2.2D contains enhancements for terminal emulation, screen capture, and print functions. Version 2.2TN is an expansion of 2.2D to include tn3270 protocols. You can now use Telnet 2.2TN to emulate an IBM 3270 full screen terminal and to access CMS, Wylbur, and CICS at ANL.

The primary new capability is the tn3270 protocol that enables IBM Personal Computers attached to the Laboratory-wide Ethernet to use the full screen IBM 3270 features available in the Conversational Monitor System (CMS), Wylbur, TSO, and the Computer Information Control System (CICS). NCSA Telnet 2.2TN performs the IBM 3278 full screen emulation as opposed to programs like SIM3278 or KNET in ANLVM, which perform the IBM 3278 full screen emulation on the host computer. NCSA Telnet with tn3270 enables you to conduct a single full screen session and multiple ASCII sessions (on VMS and Unix systems) concurrently.

CTD has learned of the following limitations that affect the use of NCSA Telnet with tn3270: ANL 3Com local area network users with IBM PS/2 microchannel personal computers can use the new Telnet. However, when you exit NCSA Telnet, you will no longer have access to your 3Com local area network. To reconnect to 3Com, you will need to reboot your IBM PS/2 system.

When you log on to the Cray X-MP/14, the terminal displays your user password instead of hiding it. CTD is investigating this undesirable feature.

NCSA Telnet for the PC: Version 2.2D and 2.2TN and the NCSA Telnet diskette are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

Diskettes for the IBM version of NCSA Telnet and the *NCSA Telnet for the PC Reference Guide*

are also available at the Document Distribution Counter. Before you can use your NCSA Telnet diskette, you must obtain your own unique Ethernet address from the Computer Network Section (extension 2-7236). Attempting to connect to the network without doing so may result in disruptions for other Transmission Control Protocol/Internet Protocol (TCP/IP) network users.

USING TELLAGRAF, DISSPLA, AND SAS/GRAPH WITH TN3270

IBM Personal Computer users who have the tn3270 software (see "NCSA Telnet for IBM Personal Computers with Full Screen Capabilities Now Available" in this *Newsletter*) can use the Tektronix 4014 emulation to display graphics with Tellagraf, Disspla, or SAS/Graph software in CMS. When doing graphics during a full screen CMS session, you must supply additional statements to indicate to the graphics software that tn3270 is using IBM 7171 protocol standards.

Tellagraf users (besides defining their PRIMARY DEVICE NAME as "TEK" and MODEL as "4014") should edit their Tellagraf profile file to add one additional statement:

PRIMARY PROTOCOL CONVERTER IS 4.

You can insert this statement anywhere before the "EXIT." statement.

Disspla users should insert in their Disspla program the following statement before the subroutine call that initializes the Tektronix 4014 driver (CALL TEKALL ...):

CALL IOMGR (4, -109)

SAS/Graph users should use the following code prior to calling any graphics procedures:

```
GOPTIONS NOTEXT82 GPROTOCOL=GSAS7171 GEPILOG='18'X
GPROLOG='1B00' DEVICE=TEK4014;
```

Once your graphics have terminated, press ALT-R to reset your terminal screen and take it out of graphics mode.

TELECOMMUNICATIONS NEWS

CHARGING FOR ACCESS TO CENTRAL COMMUNICATION EQUIPMENT REVISED

CTD has been offering a variety of asynchronous access methods to the central and distributed computing services. The equipment providing this access includes the X.25 terminal multiplexor, the Hydra Protocol Converter, the Digital Equipment Corporation (DEC) terminal servers, and the Transmission Control Protocol/Internet Protocol (TCP/IP) terminal server. Previously, the users of the central computers have borne the cost for these services. CTD is introducing a new charging mechanism to equitably distribute the associated costs to the actual users.

The X.25 terminal multiplexor and the Hydra Protocol Converter provide asynchronous access to the central IBM computers. The DEC terminal server not only provides access to the central VAX cluster but also can access other computers attached to the Laboratory-wide DECnet. Likewise, the TCP/IP terminal server can access any computer attached to the Laboratory-wide TCP/IP network.

Users can access this equipment onsite by dialing the following telephone numbers:

X.25 Terminal Multiplexor	2-2525
DEC Terminal Servers	2-8700
TCP/IP Terminal Server	2-5588

Starting on October 1, 1989, CTD will begin to charge for this service. To recover the operation and maintenance costs, CTD will charge \$0.006 per minute for data calls made to this equipment. Users will be able to verify the charges by reviewing the monthly invoices sent to each division or by using the COSTCSUM utility in CMS and VAX/VMS.

VAX/VMS NEWS

NEW CENTRAL VAX CLUSTER REMOTE PRINT SERVICES AND RATES

CTD announced a central VAX cluster remote print service in the July 1988 *Newsletter* ("Central VAX Cluster Remote Printer Service Available"). The central VAX cluster now operates print queues for seven remote printers located in Biological, Environmental, and Medical Research; Advanced Photon Source; Energy and Environmental Systems; Electronics; and Materials Science. These print queues allow users to route printed output via the Laboratory-wide Ethernet from any CTD mainframes (IBM, Cray, and VAX) and from distributed VAXes with NJE services to their remote printers.

Our user community has been encouraging CTD to provide Apple Macintosh and IBM Personal Computer connections to the central VAX cluster. Apple Macintosh and IBM Personal Computer users could then route their printed output back to their remote printers. CTD will charge the existing "Remote Printing" rate (\$0.10 per thousand lines) listed in the *Computing and Telecommunications Rates* for remote print records transmitted over the network.

To recover the cost of providing these remote printer services, CTD has established the following new rates for remote printing from the central VAX cluster:

Print queue set-up fee	\$50 (one-time)
Print queue subscription fee	\$10 (monthly)

The print queue set-up fee covers the CTD Systems Programming effort required to define and test the new VMS print queues and to incorporate the new print queues into the production system. The monthly print queue subscription fee covers the cost of VAX cluster resources used to provide print service (regardless of the amount of print activity for a given remote printer) and CTD's efforts in responding to inquiries and reported print difficulties.

Starting on October 1, 1989, CTD will charge the above rates for VAX cluster print queues. CTD will not charge a set-up fee for print queues already established on the central VAX cluster.

JESMERGE UTILITY AVAILABLE ON THE VAX 8700 CLUSTER

When VAX users submit a job to MVS, multiple files (output datasets) are returned to their NJE READER directory in the format Jnnnncccc.LISTING (where "nnnn" is the JES job number and "cccc" is the first four characters of the output DD names). CTD has written a utility to combine all these files into one file and to place this file back into the READER directory. The original files are then deleted. You may set up a symbol to execute this command procedure. Since you are setting up a symbol, you can name it whatever you want; JESMERGE is only an example. To set up this symbol, place the following command in your LOGIN.COM file:

```
$ JESMERGE == "@SYS_ANLUTIL:JESMERGE.COM"
```

To execute the command procedure, enter (at the DCL prompt):

```
$ JESMERGE nnnn outfile_spec
```

where "nnnn" is the four-digit JES number associated with the job and "outfile_spec" is an optional output file. If you do not specify an output file, the default name will be Jnnnn.LISTING, where "nnnn" is the four-digit JES job number.

TAPELIBRARY UTILITY AVAILABLE ON THE CENTRAL VAX CLUSTER

The TAPELIBRARY utility reports on and updates the status of tapes in the CA-1 (formerly UCC-1) tape library. To invoke this utility, enter:

```
$ TAPELIBRARY
```

Figure 1 shows the TAPELIBRARY menu. You can obtain reports for tapes owned by a single user or by an entire cost center. Information reported includes dataset name, volume serial number, tape data control block (DCB) information, internal tape label, creation date, expiration date, and date of last access. Information is current as of the morning of each business day.


```

<<***** TAPELIBRARY MENU *****>>

Information                                Expire
 1 - Describe menu items                  9 - Expire Tape volume
 2 - Report Summary of your tapes        10 - Expire single dataset

List Detail For Tape Entries              Restrict/Permit Write Access
 3 - by external volume serial number    11 - Allow no write access
 4 - by first file's cataloged dsname    12 - Allow write access to all
 5 - by Data Set Name Block number       13 - Allow write access only to you

Alter Expiration/Return Date              Enter Other UCC1 Commands
 6 - Extend volume expiration date        14 - Perform an update not listed
 7 - Extend dataset expiration date
 8 - Change a personal tape's return date

Enter an item number, SUBMIT to submit job, or type QUIT to exit ==>

```

Figure 1: TAPELIBRARY Menu

You can also use TAPELIBRARY commands to query or update the status of a tape (for example, to "expire" a tape when you no longer need it). The menu within the TAPELIBRARY utility allows you to choose from various functions for updating the status of a tape. Help is available within the TAPELIBRARY utility or by entering:

\$ HELP TAPELIBRARY

CTD recommends that you review the TAPELIBRARY report and "expire" those tapes that you no longer need.

PLANS TO DISCONTINUE MASS-11 ON THE CENTRAL VAX 8700

CTD has analyzed the use of applications programs available on the central VAX cluster and has learned that the Mass-11 word processing program is rarely used. Consequently, CTD is considering not renewing the Mass-11 license and removing it from the system.

Users whose work would be adversely impacted by eliminating Mass-11 from the VAX cluster should contact the User Services Manager at extension 2-7419.

BITS & BYTES

PLANS TO DISCONTINUE FORTRAN G1 AVAILABILITY IN MVS AND CMS

The IBM Fortran G1 compiler in MVS batch and in CMS is the oldest and least used of the IBM Fortran compilers available at ANL. Fortran G1 does not compile programs conforming to the current Fortran 77 standard. CTD has analyzed usage trends and estimates that Fortran G1 accounts for less than 10 percent of all MVS Fortran compiler usage. Also, the charges collected for using Fortran G1 will not recover its \$1,176 annual license fee. Consequently, CTD plans to remove all cataloged procedures of the form FGIxxx on November 1, 1989. At the same time, CTD will remove the FORTGI exec in CMS.

CTD encourages IBM Fortran users to use the Fortran 77 language standard and the VS Fortran compiler for portability. VS Fortran also has a LANGLVL(66) option for programs written in the old standard.

MVS cataloged procedures of the form FTXxxx and FXExxx will continue to be available.

Users who are affected by the elimination of Fortran G1 and are interested in providing funds to keep it may contact the User Services Manager at extension 2-7419.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised CTD documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

An August 1989 addendum to *NCSA Image for the Color Macintosh* summarizes the specific requirements and features of NCSA Image (Version 2.0) that are available for Apple Macintosh users at ANL.

An August 1989 addendum to *NCSA PC Show for the IBM PC, XT, AT, and PS/2* summarizes the specific requirements and features of NCSA PC Show (Version 1.0) that are available for IBM PC, XT, AT, and PS/2 users at ANL.

Other Documents

The *NCSA PC Show for the IBM PC, XT, AT, and PS/2* describes how to use NCSA PC Show (Version 1.0) on the IBM PC, XT, AT, and PS/2 computers. The manual is divided into three chapters. Chapter 1 provides a brief discussion of the commands used to begin PC Show, command line parameters, and methods of exiting the program. Chapter 2 delineates the various commands that concern the display of animations or multiple images. Chapter 3 describes both the characteristics of various palettes and the commands that permit the manipulation of palettes. The local addendum is attached.

The *NCSA Image for the Color Macintosh* describes how to use the NCSA Image (Version 2.0) color imaging program on an Apple Macintosh with 256 color capabilities. The manual is divided into five chapters and one appendix. Chapter 1 provides an introduction to NCSA Image and a

brief tutorial to start the user on the program. Chapter 2 explains how NCSA Image reads and displays data files. Chapter 3 explains how windows function in the program, how to incorporate palettes other than the default palette, and how to save changes to the color palette. Chapter 4 describes the procedures to perform imaging manipulations and data analyses in NCSA Image. Chapter 5 provides brief descriptions and references for each of the tools and commands used in NCSA Image. Appendix A presents the various error messages you may encounter in using NCSA Image. The local addendum is attached.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD AUGUST 1, 1989

Cy Adams (Engineering Physics), substituting for the chairman, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:05 p.m.

UNICOS 5 Update and Plans. Doug Engert (Computing and Telecommunications) reported only one system crash (caused by some of the new system diagnostics) has occurred since the UNICOS 5 system went into production on July 17, 1989. No major user difficulties have been reported. There have been some difficulties with the new scheduler, since it was designed for larger memory systems. Work continues on tuning this scheduler.

Plans are to bring the Network File System (NFS) software up on the Cray to provide good access to data and to allow the Cray to operate independently of other nodes. The Cray will act as the file server, allowing the off-loading of simple data management tasks and interactive editing and pre-staging of data from workstations. Initially, data transfer will be from workstations to the Cray only. CTD is looking for users who would like to help test the system.

RACF-Protected Minidisks on VM. Doug continued by discussing the availability of RACF-protection for user minidisks on VM. Until late fall 1989, users should protect their own minidisks. (See "Using RACF To Control Minidisk Access" in this Newsletter.) In late fall 1989, CTD will pro-

test the remaining minidisks with a universal access code of "none." With this system, better access accountability will be available for auditing usage. Users will be able to build their own permission lists. (See "Plan to RACF-Protect All CMS Minidisks" in this *Newsletter*.)

Updated ANL Computer Protection Policy.

Jean Troyer (Computing and Telecommunications) presented the latest update on the *ANL Computer Protection Policy*, which the Computing Policy Committee (CPC) has recently rewritten and approved. (See "New Computer Protection Policy Issued" in this *Newsletter*.)

Multinet Communications Plans.

Larry Amiot (Computing and Telecommunications) reported on the recommendations of the Committee on VAX/VMS Networking. The Committee recommended the purchase of a Multinet site license to provide high-speed file transfer and to endorse Network Job Entry (NJE) over Ethernet. Other features would include checks, line printer daemon availability on the IBM system, a central VAX/VMS mailer, a central Netnews bulletin board, and development of a DECnet-based unsolicited file transfer utility. Currently, an implementation plan is being prepared.

In response to a question, Larry said that a unified approach to the Transmission Control Protocol/Internet Protocol (TCP/IP) connections to Argonne West was in the planning stage.

CPC Meeting Report. Cy read the report from Dotti on the meeting held on July 21, 1989. Dave Weber (Computing and Telecommunications) presented a comparison of funding alternatives to be used as the cost-recovery mechanism for CTD for FY1990. He stated that the Laboratory Director is establishing a Computing Review Committee to develop recommendations for CTD's cost recovery and budget control. This Committee concluded that a "floors" system should be instituted--this time allocated to Associate Laboratory Director (ALD) areas in proportion to their projected shares of indirect costs. Joe Asbury (Office of the Director), CPC chairman, will appoint a CPC subcommittee (1) to review the financial and functional basis for the CTD budget (with emphasis on central computing), (2) to review major service categories and allocated resources, (3) to review areas for functional expansion and contraction, and (4) to provide a summary and recommendations to the CPC on overall budget and allocation of

resources by function. After the CPC Budget Subcommittee presents its summary to the CPC, the Programmatic Administrative Coordination Team, the Computing Review Committee, and the Management Council will review the CTD budget. Dave Weber also updated the CPC on central computing machine usage.

Hans Kaper (Mathematics and Computer Science) and Rick Stevens (Mathematics and Computer Science) presented a proposal for a parallel supercomputing facility for Physical Research. The strategy is to develop a distributed computing facility to provide cycles for "Grand Challenges." This facility would be an outgrowth of the Advanced Computing Research Facility. The operating objectives are to provide an open system with peak performance of greater than 5 gigaflops, home delivery via high-speed networks, transparent access to new resources via NFS and Unix, and a minimization of transition effort. Rick described several parallel systems (ranging from \$3,000,000 to \$6,000,000) that can approach or exceed the required performance level. Also, part of the facility would be a medium-scale Unix computer (\$1,000,000), four or five remote graphics pods (\$180,000 each), a 150 gigabyte advanced file storage with a TeraByte optical tape unit (\$500,000), a networking infrastructure (\$500,000), and staffing of four to five Full Time Equivalents (\$500,000 per year). The Applied Mathematical Sciences' Office of Scientific Computing (with Rice University, Caltech, Argonne, Los Alamos, Oak Ridge, Sandia, and Livermore as participants) has proposed a distributed computing facility. The CPC endorsed the proposal.

Jean Troyer asked for and received approval of the new *ANL Computer Protection Policy*. (See "New Computer Protection Policy Issued" in this *Newsletter*.)

Larry Price (High Energy Physics) informed the CPC that a Network Managers Working Group should be established soon. Letters requesting the appointment of representatives will be sent to those Argonne organizations that have networks on the Laboratory-wide Ethernet backbone. Larry also described the Multinet proposal, which was approved by the CPC (see earlier agenda item). Finally, he stated that ESnet is moving toward a multi-protocol network with both TCP/IP and DECnet. They have selected the Cisco router and expect to install it in October 1989.

The meeting adjourned at 4:00 p.m.

Ken Miles, CUG Secretary

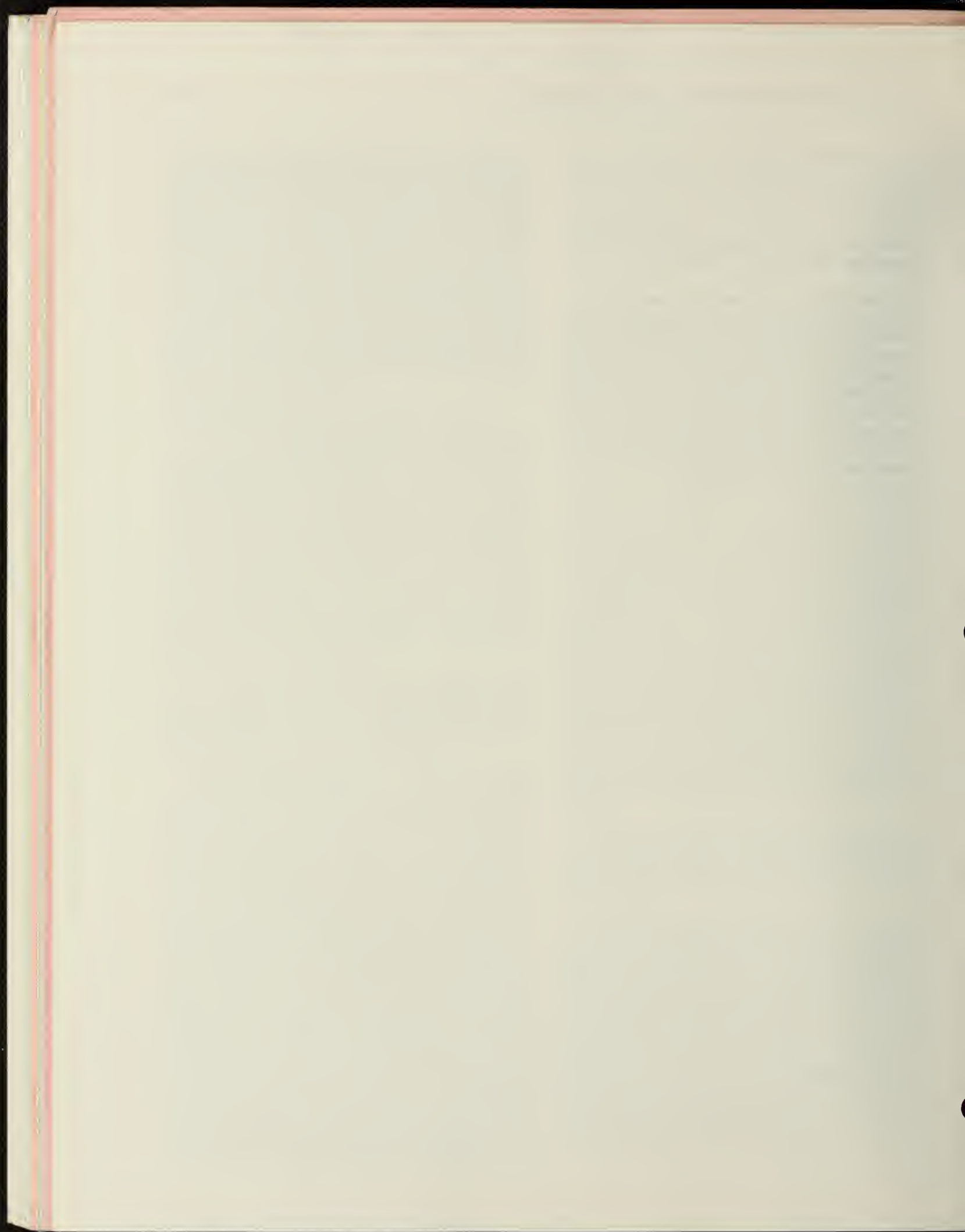
**MINUTES OF GRAPHIC ARTS USERS GROUP
MEETING HELD JULY 13, 1989**

This meeting consisted of a tour of Graphic Arts in Building 222. Representatives of Graphic Arts took small groups to the various offices and work areas, where staff members demonstrated the operation of their equipment and discussed their jobs. Designers, computer artists, and personnel in the photography department, the typesetter room, and the pressroom answered questions and, in many cases, provided samples that showed both work in progress and finished jobs.

Some fine examples of the artwork produced by Graphic Arts for various projects at Argonne are hanging on the walls in its offices. Graphic Arts has enhanced and mounted on heavy backing color photos and complex, computer-generated graphics (which were originally used for reports, brochures, or slides). Some of the photos have been grouped into montages. Subjects range from molecular structures to beakers to grazing deer. This art is for sale or for rent as part of a "revolving art" program. For \$75 or less per year, a division can revitalize an otherwise bare wall by renting a framed and matted piece of art that will be changed periodically.

The next Graphic Arts Users Group meeting will be held on Thursday, September 14, 1989, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary



WORKLOAD STATISTICS (JUNE 30 THROUGH JULY 30, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,262	1,262	480
Wylbur	1,657	1,658	381
MVS TSO	54	54	9
CICS	1,657	1,658	87
MVS Batch	2,100	2,097	661
VAX/VMS	416	427	219
Cray	456	401	125
All Systems	2,100	2,097	941

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	12,110	2,302	1,771	16,183	34,405.4	96.89
Wylbur	8,609	435	547	9,591	8,754.7	10.94
MVS TSO	86	0	0	86	151.6	0.68
CICS	48	41	27	116	0.0	5.51
VAX/VMS	7,591	683	775	9,049	10,678.4	142.46
Cray	288	132	107	527	1,320.4	24.01
IBM BATCH						
Class U	10,385	1,772	1,612	13,769	n.a.	44.65
Class W	16,973	1,554	1,146	19,673	n.a.	139.49
Class X	0	1,405	54	1,459	n.a.	82.18
Class Y	0	0	502	502	n.a.	22.43
Nonmain	15,696	3,331	2,234	21,261	n.a.	0.00
Total	43,054	8,062	5,548	56,664	n.a.	288.75
CRAY BATCH						
u	288	132	107	527	n.a.	24.01
w	3,131	350	381	3,862	n.a.	47.11
x	843	217	226	1,286	n.a.	120.99
y	5,546	820	875	7,241	n.a.	245.18
Total	9,808	1,519	1,589	12,916	n.a.	437.29
VMS BATCH						
W BATCH	1,970	1,406	1,192	4,568	n.a.	46.06
X BATCH	16	38	1	55	n.a.	13.41
Y BATCH	0	1	6	7	n.a.	2.35
Total	1,986	1,445	1,199	4,630	n.a.	61.82

INPUT/OUTPUT

Lines Printed	73,098,228
Local	48,098,687
Remote	34,881,639
Fiche	9,418
Cards Punched-Local Only	7,619
Tape Mounts	4,379
Microfiche Developed	752,139
Microfiche Frames Developed	

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	97	n.a.
Matrix 35mm Color	91	272
Matrix-8 x 10	85	85
Matrix-Negative	0	0
FR80 Film Plots		200
35mm Black/White/Unsprocketed	17	0
35mm Black/White/Sprocketed	0	52
35mm Color	6	0
16mm Black/White/Sprocketed	0	0
16mm Color	1	8

DATA MANAGEMENT

Tapes Stored	22,290
New Tapes Saved	1,102
Tapes Released	918
Datasets Exported to Tape	3,241
Datasets Imported from Tape	627

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (JUNE 30 THROUGH JULY 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	15.00		9.00	1.00	3.00		2.00
Hrs Unavailable	28.66		11.10	9.25	2.85		5.46
MTF/Unscheduled	143.06				238.44		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00		9.00				1.00
Hrs Unavailable	11.88		11.10				0.78
MTF/Unscheduled	240.11						
RED IBM 3033							
All Shifts							
Interruptions	8.00	2.00	2.00	1.00			3.00
Hrs Unavailable	12.06	1.15	0.06	7.50			3.35
MTF/Unscheduled	243.97						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00	2.00	2.00				1.00
Hrs Unavailable	1.71	1.15	0.06				0.50
MTF/Unscheduled	250.28						

AVAILABILITY STATISTICS, BY SERVICE (JUNE 30 THROUGH JULY 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	8.00	2.00	2.00	1.00			3.00
Hrs Unavailable	12.08	1.15	0.08	7.50			3.35
MTF/Unscheduled	243.97						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00	2.00	2.00				1.00
Hrs Unavailable	1.73	1.15	0.08				0.50
MTF/Unscheduled	250.26						
WYLBUR							
All Shifts							
Interruptions	14.00		9.00	1.00	2.00		2.00
Hrs Unavailable	29.35		12.13	9.30	2.21		5.70
MTF/Unscheduled	178.66				357.32		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00		9.00				1.00
Hrs Unavailable	13.05		12.13				0.91
MTF/Unscheduled	238.95						
MVS TSO							
All Shifts							
Interruptions	16.00		9.00	1.00	3.00	1.00	2.00
Hrs Unavailable	30.85		12.15	9.28	3.21	0.50	5.70
MTF/Unscheduled	118.85				237.71	713.15	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	11.00		9.00			1.00	1.00
Hrs Unavailable	13.56		12.15			0.50	0.91
MTF/Unscheduled	119.21					238.43	
JES3							
All Shifts							
Interruptions	17.00		9.00	1.00	3.00	2.00	2.00
Hrs Unavailable	28.96		11.10	9.25	2.85	0.30	5.46
MTF/Unscheduled	102.14				238.34	357.51	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12.00		9.00			2.00	1.00
Hrs Unavailable	12.18		11.10			0.30	0.78
MTF/Unscheduled	79.93					119.90	
CICS							
All Shifts							
Interruptions	1.00						1.00
Hrs Unavailable	0.91						0.91
MTF/Unscheduled	743.08						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00						1.00
Hrs Unavailable	0.91						0.91
MTF/Unscheduled	251.08						
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	12.00	1.00	7.00			3.00	1.00
Hrs Unavailable	8.58	1.33	3.96			0.86	2.41
MTF/Unscheduled	183.85					245.13	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00	1.00	6.00			3.00	
Hrs Unavailable	5.93	1.33	3.73			0.86	
MTF/Unscheduled	82.02					82.02	
CRAY							
All Shifts							
Interruptions	24.00	7.00	9.00	1.00	1.00	4.00	2.00
Hrs Unavailable	38.15	14.00	8.18	9.03	3.73	1.10	2.10
MTF/Unscheduled	100.83				705.85	176.46	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00		9.00				1.00
Hrs Unavailable	8.36		8.18				0.18
MTF/Unscheduled	243.63						

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JUNE 30 THROUGH JULY 30, 1989)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	\$1,083	\$296	\$8	\$972	\$2,359
272	ADVANCED PHOTON SOURCE	\$30	\$0	\$0	\$3	\$34
	SUBTOTAL	\$1,114	\$296	\$8	\$976	\$2,393
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO, ENVIR, & MED RES DIV	\$1,599	\$2,120	\$151	\$1,941	\$5,811
149	BEM DIV-CTR FOR ENVIR RES	\$1,414	\$108	\$34	\$1,754	\$3,309
122	ENER/ENV/BIO RES PROG DIR	\$227	\$0	\$0	\$17	\$243
174	ENERGY & ENVIR SYST DIV	\$10,092	\$10,513	\$885	\$7,020	\$28,510
190	OFF OF INTER ENERGY DEV PROGS	\$486	\$14	\$0	\$66	\$565
197	TIS - NATL ENERGY SOFTWARE CT	\$77	\$0	\$0	\$824	\$901
246	ENER/ENV/BIO RES PROG ADM	\$155	\$0	\$0	\$100	\$255
274						
	SUBTOTAL	\$14,048	\$12,755	\$1,070	\$11,721	\$39,594
ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	\$2,252	\$38	\$732	\$444	\$3,466
104	EBR-II PROJECT-ILLINOIS	\$7,336	\$490	\$51	\$3,717	\$11,594
107	CHEMICAL TECHNOLOGY DIVISION	\$1,379	\$83	\$0	\$54,133	\$55,595
112	REACTOR ANAL & SAFETY	\$11,177	\$595	\$6,380	\$4,507	\$22,660
114	MATLS & COMP TECH DIV	\$7,042	\$6,019	\$117	\$3,904	\$16,974
115	ENGINEERING DIV - ILL	\$1,460	\$2	\$0	\$1,160	\$2,985
116	APPLIED PHYSICS-ILLINOIS	\$36,485	\$4,226	\$36,756	\$11,432	\$89,409
117	APPLIED PHYSICS-ANL WEST	\$2,613	\$2	\$6,890	\$825	\$13,331
118	REACTOR EXP & EXAM DIV	\$2,829	\$206	\$195	\$210	\$3,440
119	ANALYTICAL LABORATORY ANL-WES	\$0	\$0	\$0	\$36	\$36
171	ENRG RES PROG DIR	\$4	\$0	\$0	\$154	\$423
178	FUSION POWER PROGRAM	\$259	\$10	\$0	\$2,665	\$2,716
211	ENG DIV-DESIGN ENG DEPT	\$51	\$0	\$0	\$72	\$144
269	CHEM TECH DIV-ANALYTICAL CHEM	\$72	\$0	\$0	\$191	\$478
271	ENRG RES PROG ADMIN	\$286	\$0	\$0		
	SUBTOTAL	\$76,757	\$11,919	\$51,129	\$83,537	\$223,341
PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	\$1,841	\$3,156	\$947	\$2,368	\$8,313
109	PHYSICS DIV	\$2,331	\$653	\$984	\$1,434	\$5,403
120	CHEMISTRY DIV	\$1,138	\$2,222	\$45	\$560	\$3,965
136	INT PULSED NEUT SOURCE PROG	\$160	\$1,075	\$3,947	\$1,032	\$6,214
137	HIGH ENERGY PHYSICS DIV	\$437	\$4,942	\$6,427	\$1,469	\$13,275
139	DIV OF EDUCATIONAL PROGRAMS	\$669	\$0	\$0	\$124	\$794
145	MATHEMATICS & COMPUTER SCI	\$164	\$19	\$407	\$5,747	\$6,337
146	SCIENTIFIC APPLICATIONS RESEAR	\$6	\$220	\$95	\$35	\$355
245	COMPUTING & TELECOMMUNICATION	\$13,285	\$0	\$0	\$4,854	\$18,139
247	CTD - COMMUNICATIONS SERVICES	\$2,006	\$0	\$0	\$1,336	\$3,341
273	PHYSICAL RESEARCH PROGRAM ADM	\$146	\$0	\$0	\$165	\$311
	SUBTOTAL	\$22,183	\$12,288	\$12,851	\$19,326	\$66,647
EXTERNAL						
750	ACK WORK PROJECTS	\$156	\$1	\$2	\$158	\$318
751	FERMI NATIONAL LABORATORY	\$855	\$0	\$0	\$865	\$1,719
752	NAVY	\$18,704	\$0	\$0	\$6,243	\$24,948
753	MORGANTOWN ENERGY TECH CENTER	\$17	\$0	\$0	\$650	\$667
757	ACK WORK PROJECTS	\$245	\$0	\$0	\$766	\$1,011
760	ABBOTT LABORATORIES	\$13	\$199	\$364	\$0	\$576
762	STATE UNIVERSITY OF NEW YORK	\$9	\$124	\$1,749	\$0	\$1,978
763	GENERAL ELECTRIC COMPANY	\$0	\$0	\$0	\$0	\$0
766	BECHTEL NATIONAL INC.	\$0	\$258	\$601	\$1,790	\$2,649
	SUBTOTAL	\$19,999	\$583	\$2,717	\$10,567	\$33,866
OPERATIONS						
143	SUPP SERV DIV - ELEC DEPT	\$109	\$14	\$0	\$556	\$679
148	HUMAN RESOURCES-HEALTH DEPT	\$1,271	\$0	\$0	\$388	\$1,659
150	PLANT FAC & SERV - SPEC MATLS	\$269	\$0	\$0	\$213	\$482
161	TECH INFO SERVICES DEPT	\$1,559	\$0	\$0	\$1,921	\$3,480
201	OFFICE OF THE DIRECTOR	\$435	\$0	\$0	\$443	\$877
202	OFC OF CHIEF OPER OFCR	\$35	\$0	\$0	\$144	\$179
210	SUPP SERV DIV - CENT SHOPS	\$131	\$0	\$0	\$94	\$226
216	SUPPORT SERVICES DIVISION	\$180	\$0	\$0	\$61	\$241
222	PLANT FAC & SERV-LOGGING FAC	\$0	\$0	\$0	\$36	\$36
232	PLANT FAC & SERV-SECURITY	\$359	\$0	\$0	\$58	\$417
234	SUPP SERV DIV-OHS-HEALTH PHY	\$259	\$0	\$0	\$106	\$365
236	SUPP SERV DIV-ENV SAFE HEALTH	\$1,198	\$0	\$0	\$562	\$1,760
260	PLANT FAC & SERV-FIRE DEPT	\$0	\$0	\$0	\$36	\$36
275	SUPP SERV DIV-GRAPHIC ARTS	\$174	\$25	\$0	\$1,051	\$1,251
276	OFFICE OF PUBLIC AFFAIRS	\$471	\$0	\$0	\$53	\$524
296	OFC PUB AF - MOTN PIC UNIT	\$32	\$0	\$0	\$3	\$35
315	TELECOM COST RECOVERY	\$0	\$0	\$0	\$285	\$285
316	SUPP SERV DIV-MATLS & SERV	\$4,740	\$0	\$0	\$32	\$5,072
317	PLANT FAC & SERV-VEH MAINT	\$4	\$0	\$0	\$95	\$99
319	PLANT FAC & SERV-DRIVE&RIG SER	\$13	\$0	\$0	\$36	\$49
322	SUPP SERV DIV-TRAVEL OFC	\$388	\$0	\$0	\$36	\$424
333	SUPP SERV DIV-PROCUREMENT	\$42	\$0	\$0	\$36	\$78
350	QA, ENVIR & SAFETY OFC	\$90	\$0	\$0	\$102	\$193
361	APS	\$1	\$0	\$0	\$0	\$1
362	APS PROJECT DIRECTION	\$13	\$0	\$0	\$0	\$13
400	OFC OF CHIEF FIN OFFICER	\$69,642	\$0	\$0	\$0	\$2
401	ACCOUNTING	\$13	\$0	\$0	\$14,671	\$84,314
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$0	\$0	\$0	\$36	\$36
403	BUDGET OFFICE	\$0	\$0	\$0	\$125	\$138
410	HUMAN RESOURCES DEPARTMENT	\$8,777	\$0	\$0	\$36	\$36
412	AFFIRM ACTION PROGRAM	\$185	\$0	\$0	\$1,417	\$10,194
501	PLANT FAC & SERV-BLDG MAINT	\$35	\$0	\$0	\$168	\$353
502	PLANT FAC & SERV-INSTALLATION	\$0	\$0	\$0	\$106	\$141
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$36	\$36
504	PLANT FAC & SERV-CUSTODIAL	\$0	\$0	\$0	\$36	\$36
505	PLANT FAC & SERV-WASTE MGMT O	\$70	\$0	\$0	\$71	\$141
506	PLANT FAC & SERV-PLANT MGR OF	\$227	\$0	\$0	\$97	\$324
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$36	\$36
512	PLANT FAC & SERV-FAC PLNG/ENG	\$622	\$0	\$0	\$190	\$812
530	SITE MGRS OFC-ANL WEST	\$47	\$0	\$0	\$38	\$86
531	PERSONNEL-ANL WEST	\$44	\$0	\$0	\$36	\$80
532	SPECIAL MATLS-ANL WEST	\$1,265	\$0	\$0	\$423	\$1,688
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$36	\$36
534	PURCHASING-ANL WEST	\$13	\$0	\$0	\$36	\$49
535	SECURITY - ANL WEST	\$21	\$0	\$0	\$36	\$57
536	SAFETY STAFF-ANL WEST	\$185	\$0	\$0	\$38	\$223
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$36	\$36
538	MATLS HANDLING-ANL WEST	\$93	\$0	\$0	\$58	\$150
550	COMPUTER APPL & SERV - ANL-W	\$133	\$0	\$0	\$39	\$173
551	RAD MONITORING-ANL WEST	\$8	\$0	\$0	\$0	\$44
554	MACHINE SHOP-ANL WEST	\$45	\$0	\$0	\$37	\$83
556	SITE ENRG-ANL WEST	\$109	\$238	\$0	\$52	\$398
557	PLANT SERVICES-AW-SERVICE REQ	\$85	\$0	\$0	\$36	\$121
558	PLANT SERVICES-AW-FUNCTION	\$4	\$0	\$0	\$0	\$4
559	FOOD SERVICES - ANL WEST	\$0	\$0	\$0	\$36	\$36
561	OFC OF QUALITY ASSURANCE - AW	\$4	\$0	\$0	\$36	\$41
563	TALENT RESOURCE POOL-ANL WEST	\$0	\$0	\$0	\$0	\$0
730	OPERATING WORK PROJECTS	\$0	\$0	\$0	\$0	\$0
	SUBTOTAL	\$93,402	\$258	\$0	\$23,355	\$119,017
	TOTAL	\$227,503	\$38,099	\$67,774	\$151,482	\$484,858

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400.Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
September and October 1989

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering nine classes and one demonstration. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	September 11, 1989 (Monday), 9:00 a.m. to 12:00 noon
Location:	Building 221, Room A-261
Suggested Reading:	<i>Guide to Computing at ANL</i> (ANL/TM 336) <i>Recommended Documentation for Computer Users at ANL</i> (ANL/TM 379) <i>Guide to Telecommunications at ANL</i> (ANL/TM 422)
Instructor:	Fred Moszur

USING COMPUTER-BASED TRAINING

Goals:	To learn how to use computer-based training (CBT) courses in CMS.
Length of Demonstration:	One hour
Date and Time:	September 13, 1989 (Wednesday), 9:30 a.m. to 10:30 a.m.
Location:	Building 221, Room A-261
Instructor:	Dave Leibfritz

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: September 12, 1989 (Tuesday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for MVS batch processing. To learn about the MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for batch execution.

Length of Class: One 3-hour session

Date and Time: September 19, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

INTRODUCTION TO UNICOS

Goals: To learn the basics of the Cray UNICOS file system and space management, as well as basic Unix commands.

Length of Class: One 2 1/2-hour session

Date and Time: September 21, 1989 (Thursday), 1:30 to 4:00 p.m.

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System V* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield

USING VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.

Length of Class: One 3-hour class

Date and Time: September 19, 1989 (Tuesday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

INTRODUCTION TO UNICOS SHELL PROGRAMMING

Goals: To learn the basics of programming the Bourne Shell in UNICOS.

Length of Class: One 2 1/2-hour session

Date and Time: September 26, 1989 (Tuesday), 1:30 p.m. to 4:00 p.m.

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System V* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield

USING THE CRAY X-MP/14 FROM THE MVS STATION

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the MVS front-end station so that you can submit Cray jobs from CMS, MVS, and VAX/VMS systems.

Prerequisite: "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.

Length of Class: One 3-hour session

Date and Time: September 28, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Pete Bertoncini

USING THE CRAY X-MP/14 FROM THE VAX/VMS STATION

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing, how to submit work and to manage Cray files from the VAX/VMS front-end station so that you can submit and manage Cray batch jobs, and how to use the Cray station for interactive Cray sessions.

Prerequisite: "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.

Length of Class: One 3-hour session

Date and Time: September 29, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Tom Canfield

PROGRAM DEVELOPMENT FOR VAX/VMS USERS

Goals: To learn how to use program development tools in VMS (including the symbolic debugger, the Language Sensitive Editor, and the Performance Measurement and Evaluation package) and to apply these tools in developing your own programs.

Length of Class: Two 3-hour sessions

Dates and Times: October 26, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
October 31, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Instructor: Dave Lifka

NOTE: CTD will charge \$100 for this class, which will apply as a credit for any future use of central computing.

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
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Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SOLDB2	Using SQL/QMF (DB2): Basic Reporting
SOLDB3	Using SQL/QMF (DB2): Advanced Reporting
SOLDS2	Using SQL/QMF (DS): Basic Reporting
SOLDS3	Using SQL/QMF (DS): Advanced Reporting



ANL Computer Protection Policy

Wednesday, June 28, 1989

I. PURPOSE

This policy exists to provide guidance for the protection of Laboratory unclassified computer systems and computerized information.

II. SCOPE

This policy covers all unclassified computer systems, including (1) personal computers and word processing systems, (2) computer systems used for scientific and engineering computations, information processing, and experimental control, (3) new, experimental computing systems, and (4) the central computing systems operated by the Computing and Telecommunications Division.

III. POLICY

It is Laboratory policy to protect its computers, the information stored in them, and the sensitive applications running on them. They are to be protected, as far as is reasonably possible, from unauthorized access to applications and computing resources, and unauthorized (or accidental) modification (or destruction) of information. Adequate protection will be based on an evaluation of risks, a cost/benefit analysis of protection measures, and the sensitivity and value of the assets to be protected. It is Laboratory policy that the primary responsibility for protection of Laboratory computers, programs, and data lie directly with the users, operators, and managers of those Laboratory assets. It is Laboratory policy that all users, operators, and managers of computing resources be trained in their computer protection responsibilities. It is Laboratory policy that Laboratory-owned computers be used only for Laboratory-approved work.

IV. GOALS

- A. To protect sensitive computer applications (e.g., accounts payable, personnel, and sensitive DOE energy programs) from unauthorized alteration or disclosure.
- B. To protect computer systems from deliberate or accidental physical damage.
- C. To protect computer data and applications from deliberate or accidental modification or destruction.
- D. To provide adequate and realistic backup procedures and contingency plans that will protect the Laboratory from the consequences of any serious computer failures, and to provide for continuity of operations for computer applications supporting DOE mission-essential functions.
- E. To prevent the use of Laboratory computers for unauthorized purposes.
- F. To follow DOE requirements for reporting computer security incidents.

V. RESPONSIBILITIES

A. The Computing Policy Committee:

1. Advises the Laboratory Chief Operations Officer on the suitability of proposed Computer Protection Policies.
2. Approves plans for implementing proposed policies.

B. The Director of Computing and Telecommunications appoints the ANL Computer Protection Program Manager.

C. The Site Manager of Argonne West appoints the Associate Computer Protection Program Manager for Argonne West.

D. ANL Division Directors, Program Managers, and Department Heads:

1. Appoint a Divisional, Program, or Departmental Computer Protection Program Representative for their organization.
2. Appoint an Assistant Computer Protection Program Manager for each sensitive computer in their organization (one person may be responsible for more than one system). This person is usually (but need not be) the system manager for the computer.
3. Insure that computer security awareness and education training is provided for their organizations.

E. The Computer Protection Program Manager:

1. Formulates ANL computer protection policies.
2. Prepares the Laboratory's Computer Protection Plan.
3. Manages a program to identify sensitive computer applications.
4. Manages a program to review, test, and approve protection plans for sensitive applications and computer systems.
5. Reviews and approves the computer protection aspects of audit inspections.
6. Conducts appraisals of adherence to the Laboratory's Computer Protection Plan.
7. Manages a computer security education and awareness program.
8. Manages a program to train divisional Computer Protection Program Representatives and Assistant Computer Protection Program Managers.
9. Manages the Laboratory's computer-incident reporting system.
10. Maintains the Laboratory's computer protection files.
11. Coordinates requirements for the unclassified computer protection program with Laboratory personnel having responsibilities for telecommunications security and classified computer security.
12. Serves as a Laboratory focal point to coordinate with DOE on matters involving unclassified computer security.

F. The Associate Computer Protection Program Manager for Argonne West:

1. Coordinates computer protection activities at Argonne West to comply with the ANL Computer Protection Program.
2. Formulates computer protection policies for Argonne West (in cooperation with the Computer Protection Program Manager).
3. Reviews and approves the computer protection aspects of audit inspections at Argonne West.
4. Reviews protection plans and conducts appraisals of adherence to the Laboratory's Computer Protection Plan at Argonne West.
5. Coordinates the computer security education and awareness training at Argonne West.
6. Coordinates Argonne West's computer-incident reporting and subsequent investigations for incidents at Argonne West.

G. The Computer Protection Program Representatives:

1. Charge the manager of each new or significantly changed application to determine the sensitivity of the application and forward that information to the Computer Protection Program Manager.
2. Review, approve, and have available upon request risk assessments and protection plans for sensitive applications and computer systems in their organizations.
3. Ensure compliance with generic Laboratory risk assessments and protection plans (or write an individual risk assessment and protection plan) for non-sensitive computer applications and systems in their organizations.
4. Conduct security-design reviews and tests, and certify and re-certify protection measures for sensitive computers and applications in their organizations.
5. Ensure that personnel in their organizations receive computer security education and awareness training.
6. Report and document computer security incidents in their organizations in compliance with the ANL computer incident reporting procedures.
7. Review the contents of unclassified divisional computer systems at unannounced intervals with the knowledge and cooperation of division management by random sampling. Document the results, and forward any findings to the Computer Protection Program Manager. This review must occur at least annually, but may not cover every computer. The resources used should be commensurate with the loss expectancy.

H. The Director of Management Information Systems:

1. Appoints a Computer Protection Program Representative for systems maintained by Management Information Systems.
2. Reviews risk assessments and protection plans for all Laboratory-wide sensitive information-system applications.

I. The Computer Protection Program Representative for Management Information Systems:

1. Charges the manager of each new or significantly changed application managed by Management Information Systems to determine the sensitivity of the application and forwards that information to the Computer Protection Program Manager.
2. Reviews, approves, and has available upon request risk assessments and protection plans for sensitive applications maintained by Management Information Systems.
3. Insures compliance with generic Laboratory risk assessments and protection plans, (or writes individual risk assessments and protection plans) for non-sensitive computer applications and systems maintained by Management Information Systems.
4. Conducts security-design reviews and tests, certifies, and re-certifies security specifications for sensitive applications.
5. Insures that personnel in Management Information Systems receive computer security and awareness training commensurate with their responsibilities.
6. Manages the documentation and reporting of computer security incidents involving applications maintained by Management Information Systems.
7. Reviews and approves the computer protection aspects of audit inspections made on systems maintained by Management Information Systems.

J. The Assistant Computer Protection Program Managers:

1. Prepare and have available on request risk assessments and Computer Protection Plans for each of the sensitive computers for which they are responsible. This task can be delegated to the system manager for the computer system and then approved by the assistant, where the two are not the same person.
2. Submit the protection checklist for their computer(s) to the Computer Protection Program Manager.

K. The Managers of Computer Applications:

1. Complete a Computer Application Sensitivity Questionnaire for each new or significantly changed application and verify the information as requested by the Computer Protection Program Manager.
2. Insure that adequate back-up protection exists for the application data.
3. Comply with protection measures documented in the protection plan.

L. The Managers of Sensitive Computer Applications:

1. Prepare risk assessments and protection plans (and, where appropriate, contingency plans) for each sensitive computer application.

2. Insure that the protection of any computer system on which the application runs is adequate for the protection needs of the application.
- M. The System Managers of Non-Sensitive Computer Systems insure that the computer system complies with Laboratory policy and procedures for the protection of computing resources.
- N. The Requisitioners of Sensitive Computer Applications or Significant Computer Systems:
1. Include appropriate protection requirements in the procurement specifications.
 2. Provide completed sensitive computer system or application checklists.
- O. The Procurement Department ensures that procurement requests for sensitive computer systems and computer applications are in compliance with ANL procurement procedures.
- P. The Human Resources Department performs normal pre-employment screening checks on prospective employees.
- Q. The Internal Audit Department reviews the contents of the ANL mainframe computer systems at unannounced intervals by random sampling at the request of the Computer Protection Program Manager, and subject to effort constraints.
- R. The Computer Users:
1. Provide adequate protection, including proper password selection and protection and data backup, for the applications, data, and computers they use.
 2. Report computer-security incidents and other suspicious happenings or activities to the proper authority.
 3. Understand and comply with the *ANL Computer Protection Policy* and computer protection plans for the applications and computer systems they use.

VI. DEFINITIONS

- A. An application is a set of all computer programs and related data used in an activity or project or closely related set of activities or projects. Examples of individual applications are the Laboratory's Integrated Financial System, the codes used to calculate the energetics and dynamics of molecular systems, and the codes used to determine core neutronics.
- B. A sensitive computer application is an application that requires protection because it contains data that must legally be protected (e.g., Privacy Act Information, Unclassified, Controlled Nuclear Information, Official Use Only Information) or because of the risk and magnitude of loss or harm that could result from improper operation or deliberate manipulation of the application (e.g., payroll, personnel, proprietary code, DOE energy code, reactor control code, and substantial financial loss).
- C. A sensitive computer system is a computer system that processes sensitive applications or one that qualifies as sensitive because it is significant (see below).
- D. A significant computer system is a computer system that consists of a stand-alone computer with peripheral equipment or a network of computer systems. The capacity of the system or network is such that its computing capacity currently requires it to be reported in the annual DOE Information Technology Resources long range planning process.
- E. A protection checklist is either of two specific forms. The "Sensitive Application Checklist" describes the information needed to complete a protection plan for a sensitive application. The "Sensitive Computer System Checklist" describes the information needed to complete a protection plan for a sensitive computer system.

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

SPECIAL EDITION

OPEN HOUSE

SEPTEMBER 1989

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COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

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The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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SPECIAL EDITION NEWSLETTER

In the spirit of the September 1989 Argonne Open House, the Computing and Telecommunications Division (CTD) has produced this "Special Edition" of the Argonne Computing Newsletter. Although the Newsletter is primarily prepared for and distributed to computer users of central computing services, CTD has developed this issue for more of our friends (both inside and outside the Laboratory) who have interests in computing. This issue presents a view of current plans, services, initiatives, and recent accomplishments in computing at Argonne.

CTD will conduct an Open House in Building 221 for ANL employees on Friday, September 15, 1989, from 1:00 p.m. to 4:30 p.m. The Open House will be available to the general public on Saturday, September 16, 1989, from 9:30 a.m. to 4:30 p.m.

COMPUTING COMMENTS

LOOKING INTO THE CRYSTAL BALL FOR COMPUTING

This special issue of the *Newsletter* is devoted to the current plans, services, initiatives, and recent accomplishments of scientific computing. This article takes a step back to look into the future, say in five years or so. By anticipating where we are going, you should be able to see how current activities described in this *Newsletter* fit in with future plans.

Frank Morgan in the *Wizard of Oz* has a scene early in the movie where he meets Dorothy as she is running away from home. He starts to predict her future by looking into his crystal ball. But since he is not a real wizard, he looks in her belongings and finds a picture of Dorothy's Aunt Em, which he places under his crystal ball. Like Frank Morgan, we will attempt to predict the future by looking at what others at the Laboratory have been saying and doing.

The future of scientific computing in one word is Unix. Every major computer manufacturer has some form of Unix as one of its systems. For example, Digital Equipment Corporation (DEC) has the ULTRIX system and IBM has the AIX system. Unix is available on the Cray, which runs UNICOS, and on Sun workstations, which run SunOS. All the current parallel processors in the Advanced Computer Research Facility (ACRF), Apple MacIntoshes, personal computers, the NeXT machine, and even NBI word processing systems can run Unix. Even if you, as a user, have not had exposure to

Unix yet, within five years you will probably have used Unix. Presently at the Laboratory, we see the beginning of a shift toward Unix. The Mathematics and Computer Science (MCS) Division has been an advocate of Unix for years. The Energy and Environmental Systems (EES) Division is using Unix for many of its projects. The Theoretical Chemistry Group has a number of Unix machines of their own. The Engineering Physics (EP) Division has a few Unix systems. CTD has Unix on the Cray and a few workstations. Within five years CTD will probably have a general Unix system at the heart of its central operations.

This shift towards Unix does not mean that the other systems currently in operation at the Laboratory will immediately disappear. MVS will be used primarily for administrative computing with some scientific computing. VMS will continue to be used, but it will have many of the Unix features (such as NFS and X-Windows).

A workstation connected to divisional file servers and other divisional computers will be on every desk for computation power. These, in turn, will be connected to larger file servers and special computational processors in CTD. In five years, the main difference will be the integration of these systems. A user will start a process on the workstation, and the workstation will be able to start additional processes on other computers to complete the computation. This process will happen without the user's request. Workstations will be used in a parallel processing mode to solve large problems, especially at night and on weekends.

Fast networking is the key to distributed computing. Fiber optics will replace the current Ethernet. A new Laboratory-wide high-speed network

will supplement the current Private Branch Exchange (PBX) LANMark network. Networks will make high-speed connections to other sites at, or above, current Ethernet speeds.

Advanced computer graphics will be built into most application programs. Many users will sit at their workstations, view the results, and interact with their programs in real time. Some of these workstations will produce three-dimensional graphics by using a form of stereoscopic viewing glasses.

The larger processors will be of a parallel architecture. These specially designed processors will be available to the scientist for specific projects. The "grand challenge" style of computing will demand this.

GRAND CHALLENGES FOR THE U.S. SCIENTIFIC COMMUNITY

The widely quoted 1987 report *A Research and Development Strategy for High Performance Computing* by the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) highlighted the fact that greatly improved high-performance computing capabilities are essential in virtually all scientific disciplines if the U.S. is to sustain its industrial productivity, its role as a world leader in industry and technology, and its national security. The "FCCSET report" urges the development of faster, more sophisticated "number-crunching" sequential supercomputers as well as new architectures that embody parallelism in various forms. In the emerging collaboration among industry, academia, and government to develop high-performance computing far beyond the capabilities of current machines, Argonne and other national laboratories will play a key role because of their extensive current involvement in computational research and their available expertise.

In semiconductor design, for example, as the size of electronic devices decreases and intrinsically faster materials (e.g., gallium arsenide) are used, scientists must be able to simulate electronic properties to determine overlay formation, trapped structural defects, and the effects of lattice mismatches. In biophysical chemistry, computer simulations of complex three-dimensional molecular dynamics are necessary to understand the time-dependent behavior of enzymic catalysis, nucleic acids, antibody/antigen binding, and other dynamic events central to cell biology. In nuclear fusion, highly complex computations in three-dimensional geometries of

the dynamics of magnetized fluid interacting with the kinetic transport of ions and electrons in plasma under the influence of external fields are necessary to understand the behavior of ionized gasses at high temperatures under the influence of strong magnetic fields. Similar computations are necessary to explore other unprecedentedly complex challenges in materials sciences, in biology and medicine, in studies of the universe, in transportation, in energy production, in earth studies, and in advanced systems for productivity. In each of these scientific areas, however, the demands for computational speed and data storage are beyond what are available today by several orders of magnitude.

Computational scientists must also revise and replace a tremendous volume of software generated and tested in the past thirty to forty years that simply cannot make use of the new computers. A one-hundred-thousand-line program developed for a sequential machine will not run easily on a massively parallel computer such as the Connection Machine. In fact, many of the underlying algorithms developed for efficient use on sequential or vector computers may be totally inappropriate for use on parallel machines. Further, the efficient assimilation of data in the near future will require extensive visualization of scientific data and remote sharing of information over network bandwidths at speeds in the neighborhood of one gigabit per second.

Current research at ANL already positions the Laboratory to work within the U.S. scientific community in exploring advanced computer architectures and developing new computer applications for the collection and efficient use of data at 1000 times faster than the peak performance speed of today's fastest computers.

RECENT ACCOMPLISHMENTS

NEW MICROWAVE SYSTEM BETWEEN ANL AND FNAL INSTALLED JANUARY 1989

In January 1989, CTD installed a new digital microwave system between Argonne National Laboratory (ANL) and Fermi National Accelerator Laboratory (FNAL) in Batavia, Illinois.

The Motorola microwave previously in service was 15 years old, unreliable, and would not handle the higher transmission speeds and digital interfaces

required with modern computer systems. CTD has installed International Microwave Corporation's modern digital equipment that uses the existing parabolic antennae and passive reflectors and operates on the same frequency allocated to the previous Motorola microwave. The new microwave system has the capacity to allow four T1 (1.544 megabits per second) channels. Initially, CTD is using two of the T1 channels and reserving the remaining two for future use.

The new microwave system provides enhanced network access capabilities for the participating organizations and Argonne. High Energy Physics (HEP) researchers have high-speed data transfer capability for their current experiments on the collider detector equipment at FNAL. The Argonne Laboratory-wide Digital Equipment Corporation network (DECnet) has high-speed data communication to the High Energy Physics network (HEPnet) through the FNAL HEPnet node. FNAL has high-speed data communication to the Magnetic Fusion Energy network (MFEnet) through the Argonne MFEnet node. FNAL users have higher speed NJE access to the ANL central IBM computers. The microwave system provides the capability for a Transmission Control Protocol/Internet Protocol (TCP/IP) link between ANL and FNAL and thus provides FNAL access to the Chicago Hub universities (University of Illinois at Chicago, Northwestern, University of Chicago, University of Notre Dame, and the Illinois Institute of Technology).

CTD has installed new voice and asynchronous terminal services between ANL and FNAL on the microwave system. Six voice channels now connect the Argonne Private Branch Exchange (PBX) to the FNAL Centrex system. Voice users dialing between ANL and FNAL automatically use the microwave system for their calls.

Asynchronous data connections between ANL and FNAL can now use the microwave system. Argonne offers three asynchronous circuits to the FNAL port selector. To access these data circuits onsite, dial extension 2-7707. The asynchronous protocol parameter settings for access to this number are 9,600 bits per second, 8 bits, and no parity. Two asynchronous circuits allow FNAL users to access Argonne computers. The two asynchronous circuits from FNAL to ANL use machine keyboard origination that allows access to any Argonne computer connected to the Argonne PBX.

Anyone at FNAL who has a terminal connected to any of the FNAL port selectors can connect to any Argonne computer by entering:

ANL

The port selector will display the message

GO

followed by a beep. You are, then connected to the Argonne system. To access the Argonne PBX system, alternately depress

- =

until you hear a beep and see the message:

ENTER - DIRECTORY (D) , NETWORK (N) . .

Then, you can enter "D" followed by the destination number.

CTD has also connected ANL's backbone local area network to FNAL's backbone local area network through a T1 (1.544 megabits per second) channel. The T1 link will run the dual protocols of DECnet and TCP/IP. In August 1989, Argonne DECnet nodes that are now connected to FNAL and HEPnet will be rerouted through the T1 microwave channel connecting the ANL and FNAL backbone networks. The microwave system also allows FNAL access to the Chicago Hub universities (see "ANL Joins Chicago Area Hub Network" in this *Newsletter*).

ANL JOINS CHICAGO AREA HUB NETWORK

Argonne is connected to the Chicago Hub network (CHUBnet) by a T1 service (1.544 megabits per second) link to the University of Chicago. CHUBnet includes Argonne National Laboratory, the University of Illinois at Chicago, the University of Chicago, the University of Illinois at Urbana-Champaign, Northwestern, the Illinois Institute of Technology, Notre Dame, and Fermi National Accelerator Laboratory (FNAL). The link between Argonne and the University of Illinois at Chicago uses the new dual protocol router purchased from Cisco Systems. The dual protocol router is capable of simultaneous transfer of the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Digital Equipment Corporation (DECnet) data packets.

FNAL is connected to CHUBnet through Argonne. The ANL/FNAL microwave link and the Cisco router at ANL provide FNAL with TCP/IP and DECnet connectivity to CHUBnet.

The National Science Foundation has funded a new regional network, the Consortium for Institutional Cooperation (CICnet), which provides T1 links to the following Midwestern regional universities: the University of Wisconsin, Michigan State University, the University of Michigan, Ohio State University, the University of Minnesota, Indiana University, the University of Iowa, Northwestern University, the University of Chicago, the University of Illinois at Chicago, and the University of Illinois at Urbana-Champaign. CHUBnet and CICnet are interconnected at the University of Illinois at Chicago and the CHUBnet/CICnet backbone network is connected via T1 links to the University of Illinois at Urbana-Champaign (the university network and the National Center for Supercomputer Applications). The National Science Foundation network (NSFnet) connects to the CICnet regional network at both the University of Illinois at Urbana-Champaign and the University of Michigan at T1 speeds.

Since 1987, Argonne researchers have used the TCP/IP protocol to access NSFnet. With the purchase of the Cisco Systems dual protocol router, Argonne researchers can now use the DECnet protocol in their scientific collaborations with regional institutions.

NEW FINANCIAL SYSTEM BEGINS OPERATION

Three years ago, the Administrative Data Processing Oversight Committee approved a multi-year project to modernize the Laboratory's financial systems. In May 1989, the Integrated Financial System (IFS) began production cutover with the operation of the General Ledger, the Financial Controller (an interface between the purchased software and all other systems), and Information Expert reporting.

The goals of the IFS project are to provide timely, accurate, reliable, and complete data to organizational and individual users of financial information. The purchased software (from Management Science America, Inc.) will create an environment in the Customer Information Control System (CICS) in which users will have direct access to the Laboratory databases and the Laboratory will be able to distribute data entry. The system will assist in the transfer of data between the central financial systems and personal computer databases, spreadsheets, and graphics applications and will make possible the transfer of financial data to other computers on the Laboratory-wide Network Job Entry (NJE) network.

Implementation of the new system has the most immediate impact on the Office of the Chief Financial Officer, but users from both programmatic and non-programmatic divisions will soon see the results of the new financial operations. The Financial Applications Committee to Effect Telesis (FACET) User Group, which has been active throughout the analysis and procurement stages of the project, will continue to play a strong advisory role in the implementation phase.

NEW DISKS EXPAND CRAY DISK STORAGE TO 20 GIGABYTES

CTD acquired a DS-40 disk subsystem for the Cray X-MP/14 computer in December 1988 to provide a six-fold increase in available user disk storage space in the /n1 and /s1 file systems. The new 20.8 gigabyte (Gbyte) storage capacity DS-40 disk subsystem replaced the four Cray DD-49 disk storage units that were delivered with the initial Cray X-MP/14 shipment in November 1987. This increase in Cray disk capacity enables users more flexibility in processing large amounts of data by reducing the dependency on the MVS and VAX front-end systems for staging datasets. With the recent installation of UNICOS 5.0, the increased storage allows CTD to offer a Network File System (NFS) storage capability to Cray users who work with other Unix computer systems at the Laboratory. (See "Network File System Available for Cray Supercomputer" in this *Newsletter*).

INITIATIVES FOR ADVANCED COMPUTING

ACRF FOCUSES ON RESEARCH IN PARALLEL PROCESSING

The Advanced Computing Research Facility (ACRF), operated by Argonne's Mathematics and Computer Science (MCS) Division, today is recognized as the nation's leading center for research in high-performance computing.

The facility, established in 1984, currently includes nine computers with advanced architectures:

- Thinking Machines Connection Machine-Model 2 with 16,384 one-bit processors and a total of 128 megabytes of memory.

- Active Memory Technology DAP-510 with 1,024 one-bit processors having 8 kilobytes of memory.
- BBN TC2000 (Butterfly II) with 32 processors and a total of 128 megabytes of memory.
- Sequent Balance21000 with 24 processors sharing 24 megabytes of memory.
- Encore Multimax with 20 processors sharing 64 megabytes of memory.
- Alliant FX/8 with 8 vector processors sharing 64 megabytes of memory.
- Ardent Titan graphics supercomputer with 4 vector processors and 64 megabytes of memory.
- Intel iPSC/d5 five-dimensional hypercube system with 32 nodes, with 512 kilobytes of memory per node.
- Intel iPSC/d4 four-dimensional hypercube with 16 vector nodes, each with 1.5 megabytes of memory.

Researchers at Argonne and from universities, other laboratories, and industry use these advanced computers for a wide variety of research projects. For example, we are designing and restructuring algorithms and software to take advantage of parallel architectures. Results have been impressive: not only have we achieved high performance, but we have been able to port the algorithms to machines architectures.

Closely associated with work on algorithms and software is research on parallel programming methodologies. One significant development has been the design of SCHEDULE, an environment for writing and evaluating explicitly parallel programs in Fortran. SCHEDULE was recently identified as one of the major research accomplishments supported by the U.S. Basic Energy Sciences Program for 1988.

MCS has also been analyzing computer languages for programming multiprocessor systems. Investigators have used the logic programming language Strand, for example, to develop software tools for comparing sequences of genetic material and for computing protein structure.

The National Science Foundation recently recognized the expertise acquired in the ACRF by awarding the ACRF a multimillion-dollar grant to establish a Science and Technology Center for Research in Parallel Computing; the new center

operates a distributed computing facility, of which Argonne's ACRF is the leading component.

Watch the *Argonne Computing Newsletter* for the schedules for classes sponsored by the ACRF that explore parallel processing techniques on available computers.

INITIATIVES IN PARALLEL COMPUTING

Recent computing trends have proven that computer manufacturers have made remarkable achievements in the design of electronic circuitry to produce increasingly more powerful computers. At this time, however, many computer designers and computer users believe that continuing to achieve dramatic increases in computer speed (for example, 1,000 times faster than today's computers) will require parallel-architecture computers. Parallel computers execute a single program by dividing up work to be performed concurrently by many processors (in parallel). Much work remains to be done to understand how to write programs that take full advantage of these new computers.

Under Laboratory exploratory research funds, CTD and MCS have been conducting projects in parallel computing by working with ANL researchers to develop new programs for parallel architecture computers and to convert existing programs for parallel computing. These projects result in the development of new algorithms, in identification of architectures most appropriate for certain types of computations, and in better preparation of ANL divisions to take advantage of parallel processing for future applications. The results of efforts in fiscal year 1988 are documented in the *FY88 Project Report for the Center of Energy Research Computation* (ANL/TM 465). Applications included molecular dynamics, high-energy physics, structural mechanics, and fluid dynamics. Argonne's Advanced Computing Research Facility (ACRF) provides the experimental computing environment (the Connection machine, Sequent, Encore, and Alliant) in which to investigate parallel architectures.

Current projects include computational chemistry, structural mechanics, molecular dynamics, materials analysis and characterization, and Strategic Defense Initiative (SDI) related programs. ANL divisions are invited to explore applications of parallel processing by establishing joint research projects with CTD. For additional information, contact Chuck Mueller at extension 2-7153.

SCIENTIFIC VISUALIZATION EXTENDS COMPUTER GRAPHICS EFFORTS

Like many other research centers, ANL is launching a new initiative to pursue state-of-the-art scientific computer graphics capabilities by organizing a Scientific Visualization Facility. Scientific visualization is the depiction of quantitative scientific information through computer graphics for analysis of complex simulations or equations. Three-dimensional, time-dependent graphic representations and animation sequences can effectively depict dynamic processes, evolutionary progressions, and object interactions far more effectively than words or conventional graphics.

CTD has been collaborating with ANL divisions to develop visualization tools for scientific research. Recent visualization projects include computational fluid dynamics, animating the combustion of solid and gaseous fuels, analyzing and reconstructing three dimensional images from electron microscopy data, analyzing deflections and reflections of high energy beams through the 1-2-3 superconducting lattice structure, and visualizing electron fields within dense helium liquid. While computations are often performed with supercomputers and parallel processors, much of the visualization is done locally with an Ardent Titan supergraphics workstation and a low-cost video equipment configuration. Figure 1 is an example of fluid flow around an obstruction. The black object in the center is the obstruction. The varying grey areas represent the fluid flow surrounding the obstruction.

CTD also provides graphics programming services for developing graphics tools with the Disspla graphics library. The resulting graphics programs can be used with the Cray X-MP/14, VAX 8700, IBM computers, divisional VAX computers, and other systems with Disspla.

Limited funding for CTD effort for visualization projects was provided through Laboratory discretionary funds. To meet the anticipated growth in demand and to ensure timely progress for projects, CTD plans to increase available visualization efforts with the following funding from ANL divisions: (1) a visualization staff, (2) funding for visualization graduate students, and (3) service requests. Some ANL divisions have developed proposals for



Figure 1: Fluid Flow Visualization

computational research that incorporate a visualization component with CTD collaboration. CTD will continue to explore opportunities for joint proposals with ANL divisions.

To obtain graphics programming services or to discuss possible collaborations, contact the User Services manager at extension 2-7419.

NETWORK FILE SYSTEM AVAILABLE FOR CRAY SUPERCOMPUTER

The Network File System (NFS), developed by Sun Microsystems, Inc., allows workstations or other computers to access disk files of other computers in a transparent manner. Workstation users can access files on a remote server in the same manner as if those files resided locally on the workstation. Multiple workstations can share the same file systems on a file server, and multiple file servers can be accessed by a single workstation.

NFS is a standard feature of the UNICOS 5.0 system that was recently installed on the Cray X-MP/14. Cray has added some extensions to its

implementation of NFS that allow its use in a network with independently administered systems. In particular, UNICOS is able to map userids from different systems into its own userids and to restrict the use of NFS to selected users on selected network nodes.

CTD is testing NFS access from workstations to data on the Cray. A new file system, /n2, has been defined on the Cray for those users who would like to use NFS to access data stored on the Cray. Individuals interested in testing NFS access to Cray storage should contact Doug Engert at extension 2-5444.

Although the Cray implementation of NFS allows the Cray to access file systems on other nodes, performance and reliability issues preclude this use. We have already seen situations in which the Cray has had difficulties because of its dependency on other computers. Jobs using `ftp`, `rtp`, `fetch`, and `dispose` can get into situations where the remote computer is not operational or has other difficulties. These difficulties cause the jobs to fail or to become suspended. As the main source of computing cycles, the Cray needs good access to its data and needs to operate as independently as possible. By providing the NFS file system on the Cray, CTD can meet both of these goals.

We do not expect the overhead associated with NFS on the Cray to be high. As compared to an interactive session on the Cray, NFS should have less impact on the Cray performance. With NFS, it will be possible for a user to edit UNICOS files from the workstation rather than to edit interactively on the Cray. This technique will avoid swapping and interrupt processing overhead.

CTD expects the use of NFS on the Cray to demonstrate the feasibility and need of a more general NFS file service for the Laboratory. In the future, a separate central file server may be available where data for any use could be stored and accessed from any system.

PLANS FOR HIGH-SPEED FDDI NETWORK

A new network technology is emerging as an international standard. Fiber Distributed Data Inter-

face (FDDI) is a high-speed network that uses fiber-optic cables to provide 100 megabit per second (Mbps) data rates.

The protocol is based on a dual, counter rotating token ring technology to which all stations are connected. Data is placed on the cable by a source host. It flows around the ring until the data reaches the station to which it was addressed, where it is removed from the ring and delivered to the destination host. The dual, rotating nature of the ring provides the network with reliability in the form of dynamic reconfiguration.

CTD personnel have been working with personnel from the EES and MCS divisions to implement a prototype FDDI network. Manufacturers are currently in the process of developing hardware and software products that will allow host computers to interface to FDDI rings; products are already on the market that will allow local coaxial cable-based Ethernet networks to be bridged to FDDI rings. The prototype FDDI network will bridge an Ethernet local area network (LAN) in Building 221 (the ACRF backbone) to the FDDI ring and similarly will bridge a LAN in Building 360 (the Joint Chiefs of Staff Project) to the ring. A fiber-optic FDDI cable plant will be installed between Buildings 221 and 360. The completed prototype network will then allow data to be transferred transparently from hosts on one LAN to hosts on another LAN via the high-speed, 100 Mbps FDDI network.

We are now in the procurement stages for both the FDDI bridges and fiber-optic cable plant and are in the process of evaluating a PC-based FDDI network management system. This system will allow us to control the network as well as to gather performance statistics. We plan to have the network operational by the end of September 1989. The completed network will allow us to (1) evaluate the applicability of such networks to a future Laboratory-wide network, (2) to investigate data transfer between hosts at high speeds, and (3) to investigate the usefulness of network file systems on a Laboratory-wide basis. We have prepared a general physical plant (GPP) proposal to request funds in fiscal year 1990 to extend the fiber-optic cable plant to cover all the buildings at the Laboratory where FDDI service will be necessary in the foreseeable future.

FACILITIES AND SERVICES

ASSISTANCE FOR LOCAL AREA NETWORK PLANNING

The number of personal computers (both Macintoshes and IBM Personal Computers) that are used onsite has increased dramatically in the past few years. Applications such as word processing, communications, database management, spreadsheet, and graphics are being used by the support staff as well as the scientific user. With the growing number of microcomputer users comes the increased need to share data, applications, and computer resources. Many users are now looking at ways to "network" individual microcomputers.

Because a vast array of networking solutions is available, the average user can be overwhelmed rather quickly with integration requirements and considerations. Several questions need to be addressed when you are considering a network. With whom do you need to share data? What type of systems are involved? What applications are currently being used? What application do you plan to use? Do you need to share printers? Do you need to share data with both Macintoshes and IBMs? Do you need to communicate with host computers (onsite or offsite)? The staff at CTD is available to assist users in making the appropriate choice for their computing environment on the basis of answers to these and other questions. CTD will assist users in the planning, selection, and installation of local area networks as well as providing assistance for network administrators. The rate for this assistance is \$45.00 per hour. CTD has evaluated several network solutions and has made several local area network recommendations based on experience and expertise. For additional information and assistance, call Roxanne Izzo at extension 2-7205.

PERSONAL COMPUTER PUBLIC DOMAIN SOFTWARE AVAILABLE THROUGH CTD

CTD distributes public domain software of special interest to Laboratory employees. Software is available for IBM Personal Computers (and compatibles) and for Apple Macintoshes at the Document Distribution Counter (Building 221, Room A-134).

Some applications for the IBM Personal Computer include Kermit, which provides communications and file transfer; National Center for Supercomputing Applications (NCSA) Telnet, which provides access to Telnet hosts on Transmission Control Protocol/Internet Protocol (TCP/IP) networks; tn3270, which emulates an IBM 3270 on a personal computer with a TCP/IP network connection; PCShow, which displays raster images on your personal computer; and the Cray Timesharing System (CTSS) link for accessing the Magnetic Fusion Energy network (MFEEnet). Available Apple Macintosh programs include tn3270, NCSA Telnet, NCSA Image (which displays raster images on your Macintosh), and Mac System Updates. CTD charges a nominal fee for these packages to cover the diskette and reproduction costs.

ELECTRONIC MAIL AT ANL

The growth and progress of electronic mail systems have been rapid. It is still a young technology, and improvements and enlargements are occurring frequently.

Changes and updates to the electronic mail systems used at Argonne and new developments in network connections are described in the monthly *Argonne Computing Newsletter*. More current information about electronic mail systems is available online from network services and node lists.

For someone unfamiliar with computer systems, the concept of electronic mail may seem easy enough to grasp: Electronic mail is to written communication what the telephone is to spoken communication. Rather than the telephone's streams of electrified speech, picture an envelope made of bits and bytes winging across the copper wires, fiber-optic cables, and microwave links of international telecommunication networks, carrying digitized words to the widely scattered electronic mailboxes of computer users around the world. An important difference, however, is that telephone systems have had decades to evolve, whereas electronic mail systems are relatively new.

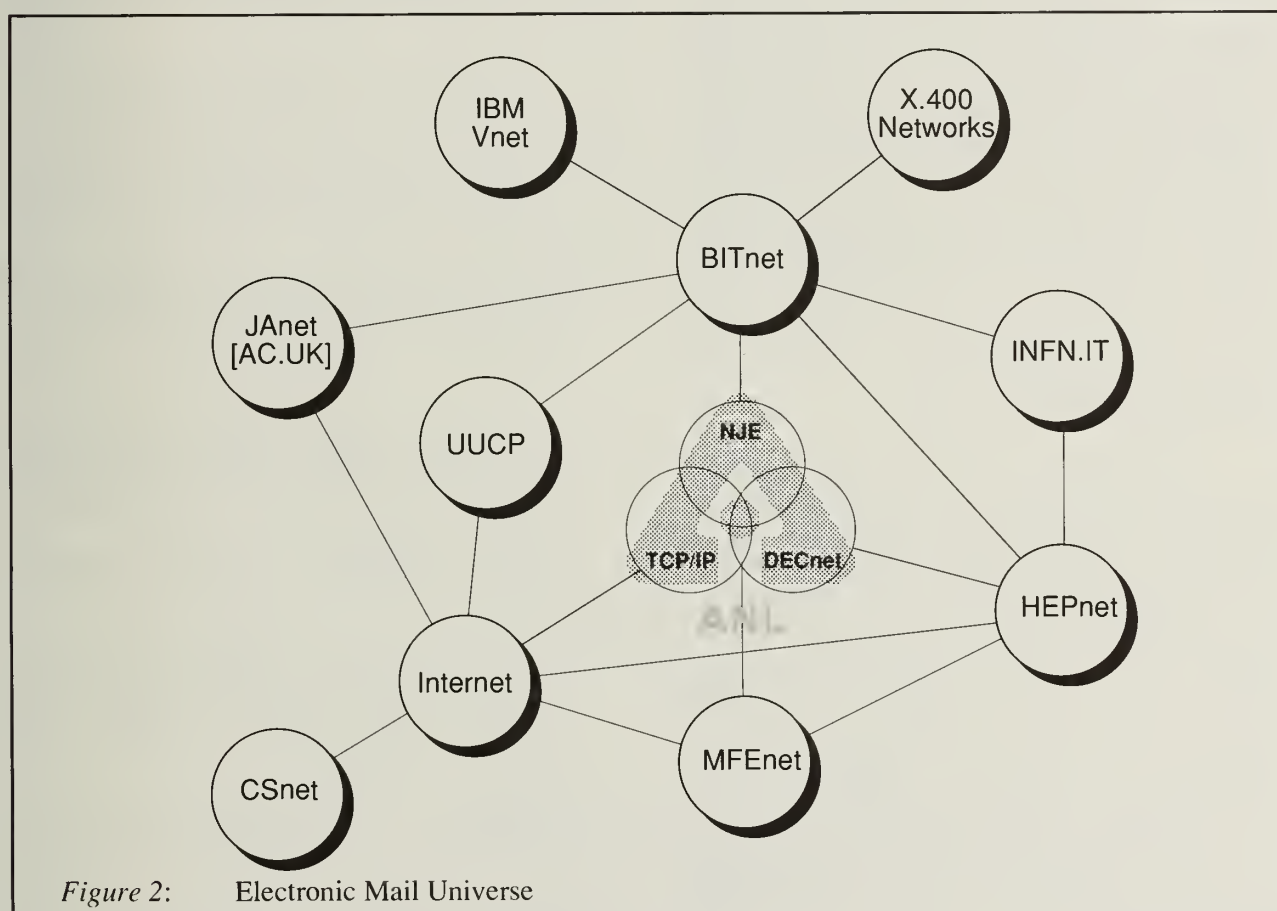
Electronic mail allows two or more computer users to communicate conveniently with each other by composing, sending, and receiving electronic messages at their workstations. You can address notes (1) to users of your own interactive system (Argonne's IBM Conversational Monitor System, CMS, for example), (2) to members of your own network (BITnet, for example, to which Argonne

belongs), or (3) via gateways, to members of other government or academic-based networks.

Sending electronic mail among persons using the same computer is as easy as picking up the telephone. At Argonne, it is just as easy to send mail to users on different computers. CTD is keeping abreast of new developments in computer networking, so that Argonne users can communicate easily with people on different computer networks.

Networks are proliferating, and the amount of communication over them is increasing at a fast rate. Electronic mail, which is a component of net-

work communication, offers the prospect of interconnecting all the scholars and researchers of the whole world. Figure 2 shows the electronic mail universe available to Argonne users. Each circle represents a different network a user can reach, (e.g., BITnet connects Argonne to other research sites and universities primarily in the U.S., Canada, and Europe). Each line represents the different connection between the networks. For more information on networks and connections, see *Electronic Mail at ANL* (ANL/TM 431) available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).



ASSISTANCE IN OBTAINING ADMINISTRATIVE INFORMATION

The Information and Production Services (IPS) Section of Management Information Systems (MIS) provides a focal point for identifying business information needs and for assisting users in accessing the Laboratory's administrative information. IPS assists users who have questions about the location or meaning of data available within the Laboratory-wide systems, such as the Human Resource System (HRS) and the Integrated Financial System (IFS).

Following the transition to the new IFS, IPS will conduct training seminars on the new Information Expert (IE) reporting tool. IPS will begin the first phase of the training after the IFS project completes all of the standard financial reports (currently projected for January 1990), by teaching users how to obtain their standard reports. Later in 1990, IPS will begin the second phase of the training program, offering courses in the IE language and library management, so users may modify standard reports and develop new reports to their own specifications. Also in 1990, following the replacement of the Laboratory's Human Resource System (HRS), IPS will enroll and train HRS users in using IE for accessing both personnel and financial data. MIS users with questions about HRS or IE should contact the IPS management at extension 2-7252.

To managers of administrative systems, IPS also provides the services of operations support specialists who schedule, submit, verify, and manage the output of administrative computing on both the IBM computers in Building 221 and the two Hewlett-Packard computers in Building 201. IPS, through the Job Scheduling System, provides a detailed schedule for the administrative computing activities each month and can also provide to administrative users a corresponding detailed schedule of their supporting activities. MIS users with schedule or operations questions should contact the Administrative Systems Production Control personnel at extension 2-6924. Hewlett-Packard users should call extension 2-8952 for the recorded status message.

NEW GRAPHIC ARTS DIRECTION: APPLE MACINTOSH-BASED SERVICES

The Argonne Graphic Arts Department has chosen Apple Macintosh-based computer products for both composition and presentation work. This direction enables Graphic Arts to concentrate efforts on value-added services, advice, and assis-

tance with design and layout. This decision reflects a general trend in the electronic publishing and presentation visuals industries to move away from large, proprietary systems to smaller, off-the-shelf equipment.

Graphic Arts equipment includes Apple Macintosh SEs, Apple Macintosh Pluses, Apple Macintosh IIs, an Apple LaserWriter Plus, and a Linotype L300P typesetter. Graphic Arts software includes Microsoft Word, Allan Bonadio Expressionist, Aldus PageMaker, Claris MacDraw II, Adobe Illustrator, Cricket Graph, and Adobe Fonts. Future Graphic Arts acquisitions will include more Apple Macintosh SEs and Apple Macintosh IIs, a color PostScript paper output, a film recorder, an 11-by-17 inch Apple LaserWriter, Quark Express, Aldus Persuasion, and Freehand.

There are three alternate ways to get documents and publications typeset in Graphic Arts:

1. Full Service: Give Graphic Arts a manuscript to design, keyboard, and lay out.
2. Value-Added Service: Give Graphic Arts a partially completed job (send most of the figures and an ASCII file of approved text for layout).
3. Self-Service: Send a PostScript file directly to the Linotype L300P typesetter (1250 dots-per-inch resolution) in Graphic Arts (see below).

There are three ways to send files to the Linotype L300P typesetter in Graphic Arts:

1. Send a PostScript file from any VAX or IBM computer on the Argonne NJE network to a RADS station located in Graphic Arts (ANLOS RM111PR1).
2. Bring in your Apple Macintosh disks with your document or a PostScript file.
3. Bring in your IBM Personal Computer disks with your document or a PostScript file.

Graphic Arts is able to produce output directly on film as well as on paper. Also, Graphic Arts is conducting experiments to produce typeset output directly to a plate for an offset press.

For more information, contact Lee Wagar (Graphic Arts Customer Service) at extension 2-5603.

ELECTRONICS PROVIDES SUN WORKSTATION SUPPORT SERVICES

The Argonne Electronics Department has extended its DEC/IBM/Apple support services to include installation, local area networking, and maintenance services as well as development of engineering applications for Sun workstations. Electronics engineers are developing the capability to implement Sun-based distributed real-time systems for data acquisition and instrument control applications. Electronics also has trained and experienced personnel and repair parts and spares for servicing the Sun-3/50, Sun-3/60, and Sun-3/140 workstations; model 514A disk and tape subsystems; and both monochrome and color monitors. Electronics will implement servicing of the higher level Sun-3/280 systems during the fall of 1989.

With trained and experienced personnel and an inventory of repair parts and spares onsite, Electronics can provide quick response to requests for computer service and can minimize system downtime. Electronics will service workstations on either a time-and-material basis or on an annual contract basis at a fixed cost. Individuals contem-

plating the purchase of Sun workstations should contact Electronics prior to issuing a Purchase Requisition (ANL-451) for information on the systems and the choice of peripherals (Sun and lower cost equivalents).

For information on Sun engineering applications, call extension 2-6972. For information on Sun computer systems, installation, maintenance, and fixed price service contracts, call extension 2-6969.

HOW TO GET A CENTRAL COMPUTER ACCOUNT

Within the Argonne computing environment, the central computing services play a prominent role. Accounts are available to Laboratory employees for using the Cray X-MP/14 supercomputer; for electronic mail access to national computer networks; for access to central laser printers; plotters and film recorders; for access to remote printers; and for access to Laboratory administrative systems. (See Figure 3 for a configuration of the computers in Building 221).

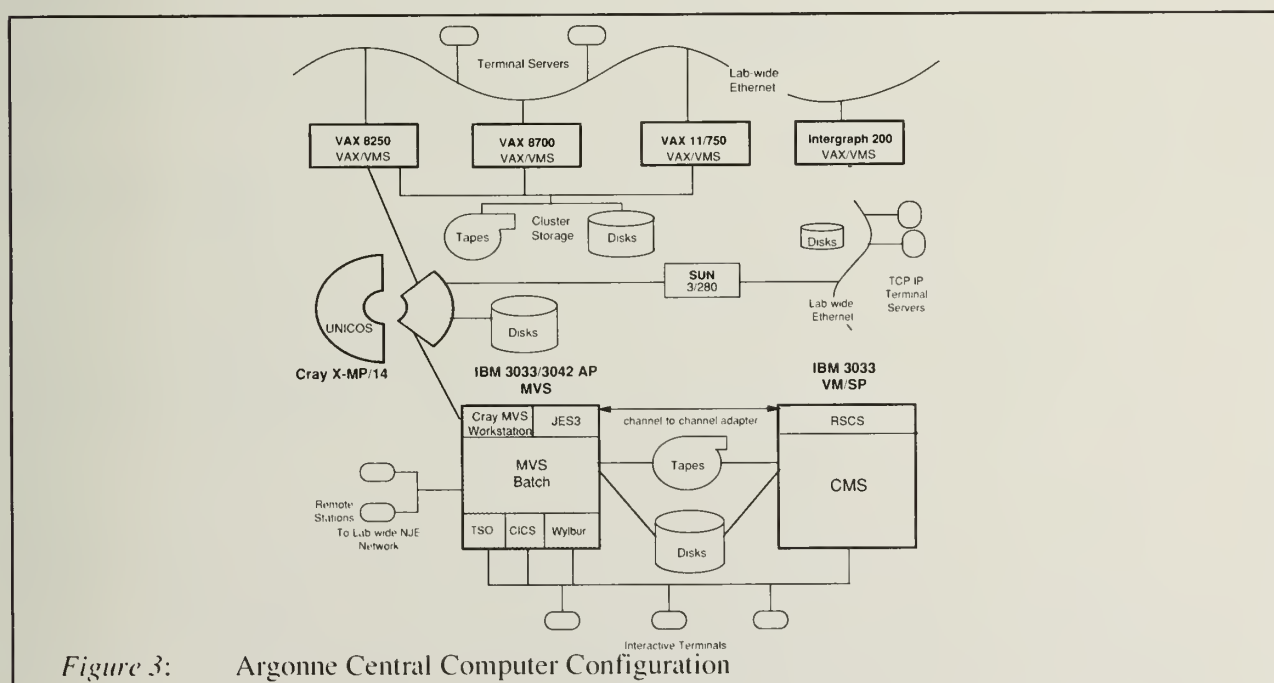


Figure 3: Argonne Central Computer Configuration

For a complete description of services available, see *Guide to Computing at ANL* (ANL/TM 336) or attend the "Introduction to Computing Facilities and Services" class on September 11, 1989. To enroll as a central IBM, VAX, or Cray user, call or visit the Account Services Office (Building 221, Room A-147, extension 2-5425).

HOW TO SUBSCRIBE TO THE ARGONNE COMPUTING NEWSLETTER

Laboratory employees with accounts on the central IBM, Cray, and Vax cluster services automatically receive the *Argonne Computing Newsletter*. CTD publishes the *Newsletter* to inform users of these services; there are often articles that appeal to a wider Argonne audience.

The Advanced Computing Research Facility (ACRF) regularly features new computer architectures and available education in parallel processing. The Electronics Department often describes maintenance services for workstations and personal computers. The Graphic Arts Department publishes information about its electronic publishing services. Other frequent topics of general interest to Laboratory employees include computer protection, graphics, networking, personal computers and workstations, and minutes of user groups like the Computer Users Group, Graphic Arts Users Group, and the Macintosh Users Group.

Offsite, as well as onsite, users may subscribe to the *Newsletter* by calling Claudette DaCosse at extension 2-5415. There is no charge for a subscription to the *Newsletter*.

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COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
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Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

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NUMBER 10

OCTOBER 1989

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COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien Hale	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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COMPUTING COMMENTS

GRAPHIC ARTS CHANGES ADDRESS OF NETWORK PRINTERS

With the installation of the AlisaPrint product on the central VAX cluster, users can now access three Graphic Arts PostScript printers from the central computers: the central VAX cluster, IBM's CMS and MVS, and the Cray X-MP/14. Users can also access Graphic Arts PostScript printers from Argonne VAXes that have Network Job Entry (NJE) installed. Apple Macintosh users on the Laboratory-wide AppleTalk can also send print jobs to the Graphic Arts PostScript printers.

Before attempting to access any of the Graphic Arts PostScript printers, you need to have specified a blanket account or to have established a service request with Graphic Arts to cover the Graphic Arts charges.

As a result of the new addresses described below, the following addresses are no longer valid:

ANLOS.RM111PR1 (Linotype typesetter)
ANLOS.RM111PR2 (QMS color printer)

CTD has established the VMS print queues on the central VAX cluster for Graphic Arts services. The Graphic Arts services are available at network address ANLCV1.queue (for example, ANLCV1.GALINO, see Table 1).

Table 1: VMS Print Queues

Queue	Service Description
GALINO	Linotype Imagesetter
GA11X17	QMS 11-by-17 inch PostScript printer
GACOLRSP	QMS color printer loaded with standard size paper (SP)
GACOLRLP	QMS color printer loaded with large size paper (LP)
GACOLRST	QMS color printer loaded with standard size transparencies (ST)
GACOLRLT	QMS color printer loaded with large size transparencies (LT)

The QMS color printer handles two form sizes. The standard form size is 11-by-8.5 inches; the large form size is 11-by-17 inches.

Central VAX cluster users may use the VMS **PRINT** command to enter a print job in the desired queue. You can print either ordinary text files or PostScript files. The Graphic Arts print queues default to PostScript file translation. Thus, if you have a text file you wish to print on the QMS 11-by-17 inch printer, enter:

```
$ PRINT /QUEUE=GA11X17 /PARAMETER=TEXT mytextfile
```

If the file you wish to print is already in PostScript format, enter:

```
$ PRINT /QUEUE=GA11x17 mypsfile
```

You can create PostScript files on the VAX 8700 by using SAS, TeX, and the Computer Associates products (Disspla, Tellagraf, and Cuechart). Other VAX packages producing PostScript files are Mass-11 and Digital Equipment Corporation (DEC) Windows.

Users who access the Cray through the VAX Supercomputer Gateway can use the **dispose** command to send PostScript graphics files to an AlisaPrint VAX queue. For example, if you wish to print a PostScript graphics file on the Graphic Arts 11-by-17 inch PostScript printer, enter:

```
dispose xmpgsfile -t'$print/queue=GA11X17'
```

CMS users can use PRINTPS, LISTPS, or HARDCOPY to send print jobs to Graphic Arts printers. MVS users can use the device ANLCV1.queue, where "queue" is one of the above Graphic Arts print queues.

RUMORS OF OCTOBER VIRUS ATTACK

Federal Computer Week (August 28, 1989) has reported rumors of (1) a time bomb virus attack on computers with MS-DOS operating systems to take place on October 12, 1989 (Columbus Day) or October 13, 1989 (Friday the 13th) and (2) a West German virus to be introduced through BITnet. These rumors have come from reporters' contacts with members of hacker groups.

Users must beware of software from unknown sources. Two years ago, many users received unsolicited CMS exec files that they were urged to run. The exec drew a picture of a Christmas tree on the user's screen, but it also sent a copy of itself to everyone on the user's mail list. The resulting

flurry of activity clogged networks and brought many computer systems down. It could have been worse had the exec been written maliciously to destroy data.

Although no one is absolutely safe from a computer virus, you can lessen your risk by obtaining software from reliable sources, making back-up copies of your software (where license agreements permit), and storing the original diskettes in a safe place. Use your back-up copies to do your computing.

Frequent back-ups of your data will decrease the loss resulting from a future virus. Viruses can (and do) erase, damage, or destroy data! Report all suspected virus attacks to your Computer Protection Program Representative, who will then report confirmed attacks to the Computer Protection Program Manager.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, October 11-13, 1989) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the TC2000 (Butterfly II), (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Knowledge of Unix and Fortran is strongly recommended. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a \$25.00 charge per

person for universities, federal laboratories, and other government organizations and a \$100 charge for commercial organizations.

COMPUTING CLASSES SCHEDULED FOR OCTOBER AND NOVEMBER 1989

During October and November 1989, CTD will offer three classes and one demonstration. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Using the Cray X-MP/14 from the MVS Station (one 3-hour session) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray jobs from other ANL computing systems (including CMS and MVS).

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Program Development for VAX/VMS Users (two 3-hour sessions) introduces useful tools available to programmers on the DEC VAX 8700 computer. The class will include a lecture and hands-on use of (1) the symbolic debugger; (2) the Language Sensitive Editor (LSE), which is an enhanced editor that allows easy transition between the debugger and the Code Management System; and (3) the Performance Measurement and Evaluation (PME) package, which produces statistics useful in tuning programs. During the second session, the class participants will apply these tools to their own code. Everyone registering for this class must have an account on the VAX 8700. CTD will charge \$100 for the class, which will apply as a credit for any future use of central computing.

Using the Cray X-MP/14 from the VAX/VMS Station (one 3-hour session) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the VAX/VMS front-end station. This class builds on concepts covered in "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" by providing examples of how to submit various Cray jobs from VAX/VMS.

CMS NEWS

UPDATE ON PLAN TO RACF-PROTECT ALL CMS MINIDISKS

On Monday, January 8, 1990, CTD plans to RACF-protect all existing unprotected CMS minidisks. The default protection will allow neither read nor write access by any user except the owner. CMS users should make a list of other users who need to link to their minidisks with the **CP LINK** command or through VM directory links. CMS minidisk owners will need to use the RACF exec to grant access authority only to those users or groups of users who need to access data on their minidisks. To avoid confusion on the cutover date, CMS users should issue the **RACSERVE DEFINE** command and permit access to their minidisks ahead of time.

CMS users can RACF-protect existing minidisks with the **RACSERVE** command:

```
RACSERVE RDEFINE cmsuser.vaddr
```

where "cmsuser" is the name of your CMS virtual machine and "vaddr" is any assigned virtual address in your CMS virtual machine (for example, 191). After you issue the **RACSERVE** command, only you will be able to access your minidisk. However, you can enter RACF commands to grant or deny permission for other users to access data on your minidisk or to list the authorized users of a minidisk.

When universal read access is not appropriate, CMS users may find it tedious to authorize individual users in their division to access a minidisk. Also, in some cases, Account Services and User Services consultants may require access to user minidisks to provide assistance. User Services has no special privileges to access user minidisks. To address these two situations, users can authorize

their own division or User Services as a group (see commands in Table 2 attached to the back of this *Newsletter*).

Enter the **RACF** command to start a RACF command session. Enter the **END** command to terminate a RACF command session. Table 2 shows the RACF subcommands to update RACF-protected minidisk profiles.

HOW TO PREPARE FOR RACF PROTECTION FOR CMS MINIDISKS

The conversion to RACF (Resource Access Control Facility) for protecting CMS minidisks can be a disruptive change for uninformed CMS users. CTD's goal is to inform CMS users what to do to minimize the impact of this change. Two things are changing:

1. RACF replaces minidisk passwords. Owners of CMS minidisks issue RACF **PERMIT** commands to create and maintain a list of authorized users for each minidisk. Authorized CMS users need not provide a minidisk password when they **LINK** to a minidisk.
2. The default minidisk access will be changed from read-only to NONE (that is, neither read nor write access).

CMS users and Cost Center RACF Administrators can set up and test the use of RACF for minidisks before the January 8, 1990, cutover date. CTD encourages users to do so (see "Update on Plan to RACF-Protect All CMS Minidisks" in this *Newsletter*).

Many CMS users distribute CMS execs to co-workers. Often those execs **LINK** to a CMS minidisk. CMS users who provide execs for use by co-workers should ensure that (1) minidisks identified in a **LINK** statement have been defined to RACF with the **RACSERVE RDEFINE** command and (2) RACF **PERMIT** commands have been issued for people who use execs that issue the **LINK(s)**.

Before the cutover date, users should look for the following message:

```
RESOURCE Bnnnnn.xxx NON-RACF, LINK DEFERRED TO CP
```

This message indicates that you are issuing a **LINK** to the minidisk Bnnnnn.xxx that is not yet

defined to RACF. The normal CMS checks are then applied to the link, and it will probably complete successfully. When the owner issues the **RACSERVE RDEFINE** command and the appropriate RACF **PERMIT** command, the above message will disappear, and the **LINK** will continue to work successfully. If the owner does not issue the appropriate RACF **PERMIT** command, the **LINK** will fail and the following message will appear:

```
YOU ARE NOT AUTHORIZED TO LINK TO Bnnnnn.xxx
Bnnnnn.xxx not linked; request denied
```

For a list of RACF functions and commands, see Table 2 attached to the back of this *Newsletter*.

CRAY NEWS

NETWORK FILE SYSTEM AVAILABLE FOR CRAY SUPERCOMPUTER

The Network File System (NFS), developed by Sun Microsystems, Inc., allows computers to access disk files of other computers in a transparent manner. Workstation users can access files on a remote server as if those files resided locally on the workstation. Multiple workstations can share the same file systems on a file server, and multiple file servers can be accessed by a single workstation.

NFS is a standard feature of the UNICOS 5.0 system that was recently installed on the Cray X-MP/14. Cray has added some extensions to its implementation of NFS that allow its use in a network with independently administered systems. To ensure authorized access, Cray users must first identify which nodes and userids may access their data stored on Cray disks.

CTD has been testing NFS access from workstations to data on the Cray and is now ready to extend the testing to users. A new file system, **/n2**, has been defined on the Cray for those users who would like to use NFS to access data stored on the Cray. Individuals interested in testing NFS access to Cray storage should contact Joe Midlock at extension 2-5447.

Although the Cray implementation of NFS allows the Cray to access file systems on other nodes, performance and reliability issues preclude this use now. We have already seen situations in

which the Cray has had difficulties because of its dependency on other computers. Jobs using **ftp**, **rcp**, **fetch**, and **dispose** can get into situations where the remote computer is not operational or has other difficulties. These difficulties cause the jobs to fail or to become suspended. As the main source of computing cycles, the Cray needs good access to its data and needs to operate as independently as possible. By providing the NFS file system on the Cray, CTD can meet both of these goals.

We do not expect the overhead associated with NFS on the Cray to be high. Using NFS has less impact on the Cray performance than an interactive session on the Cray. With NFS, it is possible for a user to edit UNICOS files from the workstation rather than to edit interactively on the Cray. This technique will avoid swapping and interrupt processing overhead and will cost much less than interactively editing the file on the Cray.

To use Cray NFS effectively, users and Unix administrators must be aware of the following:

Cray NFS Considerations for Users

1. Cray NFS data is only as secure as user data on the remote node.
2. The **/n2** directory is accessible to any remote NFS user.
3. Cray NFS files may be accessed from any computer in the authorized domain for read-and-write access.
4. Users must be aware of an administrator's ability to control Cray NFS data.
5. Users must not store sensitive data in Cray NFS.

Cray NFS Considerations for System Administrators

1. An administrator can decide to mount Cray NFS on server machines. (CTD recommendation.)
2. Otherwise, an administrator must issue the **mount** command for every computer in the domain that needs or may need access to Cray NFS. (Not recommended.)

3. An administrator now has the same control over a user's Cray NFS data as data on the local server.

CTD expects the use of NFS on the Cray to demonstrate the feasibility and need of a more general NFS file service for the Laboratory. In the future, a separate central file server may be available where data could be stored and accessed from any system.

USING DISSPLA WITH X WINDOW ON SUN WORKSTATIONS

The X Window System (also called "X") is a network transparent window system (developed by the Massachusetts Institute of Technology) that runs on several computing and graphics machines (such as Sun workstations and IBM personal computers). When using X with a Disspla program on the Cray, you can view interactively the graphical output as it is generated. This situation occurs by X opening a graphics window on your workstation where Disspla will draw the plot. Your computer or workstation must have the X Window Release 11.2 or later software installed.

To start the X Window System on your workstation, you must enter the appropriate start-up command. For example:

```
xinit
```

The start-up command for your system may have another name (for example, **x11** or **xstart**). To find out your start-up command, contact your system administrator. After X has started, a window will appear that represents a terminal session.

To use the standard window manager in the background, enter:

```
uwm &
```

This program will allow the management of windows (such as resizing and positioning).

To permit the Cray to open windows on your workstation, enter (in your terminal session window):

```
xhost xmp
```

To begin another terminal session in the background for the Cray, enter:

```
xterm &
```

Another window will appear that you can use for accessing the Cray through telnet (**telnet xmp** or **telnet xmp.ctd.anl.gov**).

After logging onto the Cray, define a shell variable named **DISPLAY** to tell the Cray where to display the graphics. To define this shell variable in the Bourne Shell, enter (at the Cray prompt):

```
DISPLAY=ipnum:0.0
export DISPLAY
```

To define this shell variable in the C Shell, enter (at the Cray prompt):

```
setenv DISPLAY ipnum:0.0
```

where "ipnum" is the IP number or Internet name (node.domain) of your Sun workstation running X.

To revise your Disspla program on the Cray to display the graphics on your workstation, replace your device nomination call with a call to the X Window driver:

```
CALL XWINDOWS (xorigin,yorigin,xlength,ylength,idynam)
```

where "xorigin" and "yorigin" is the location of the origin in inches for the graphics window from the lower left-hand corner of your screen (a negative value used for any of these parameters will produce a graphical prompt designating where to place the window), "xlength" and "ylength" are the lengths of the X and Y axes in inches, and "idynam" is a parameter that specifies a standard (0) or dynamic (1) color map.

To link a Disspla program with the X Window libraries, specify **-lX11** and **-lnet** as options with the **segldr** command. For example:

```
segldr -lX11 -lnet $DISLIB prog.o
```

After you have set up your environment and linked your Disspla program to the X Window libraries, you can run your Disspla program interactively on the Cray. Each time Disspla generates a plot, a window displaying the plot will appear. The program will stop and wait until you press the mouse button to continue. This capability is very useful for quickly previewing graphics.

For further information on X, enter "man X" or call Dave Leibfritz at extension 2-6596.

CRAY TO VAX CLUSTER DISPOSE ERROR HANDLING TO BE CHANGED

Currently, if you attempt to use the **dispose** command with a large Cray file by using the VAX/VMS Supercomputer Gateway and the file causes your VAX cluster permanent disk space quota to be exceeded, the station will place your Cray **dispose** request in a HOLD state. Periodically, the VAX/VMS station attempts to restart the **dispose** request. If the disk quota exceeded condition still exists, the system will again place the **dispose** request in a HOLD state until the next retry.

While a **dispose** request is on HOLD, your Cray job or session remains active but in a WAIT state on the Cray. This situation leads to operational scheduling difficulties and increased session times. Starting on Monday, October 9, 1989, CTD will modify the VAX/VMS station to cancel any **dispose** request that exceeds a user's disk quota.

To have your VAX cluster disk quota increased, contact Account Services at extension 2-5425. Alternately, if you have large files to use with the **dispose** command or are close to the upper limit of your disk quota, you can also place the **dispose** files on a temporary disk space on the VAX cluster. Each VAX cluster account has a quota of 500,000 blocks of disk space on the scratch volume.

To place a **dispose** file on your temporary VAX cluster disk space from a Cray job or session, enter the UNICOS command:

```
dispose myxmpfile -t 'USERSCRATCH:[username]myvaxfile'
```

where "username" is your VAX cluster VMS username (for example, B12345). You can access the resulting temporary file on the VAX cluster by referring to the filename **USERSCRATCH:[username]myvaxfile** or by using the logical name **SYS\$SCRATCH** (that is, **SYS\$SCRATCH:myvaxfile**). You cannot refer to the VMS logical name **SYS\$SCRATCH** in the UNICOS **dispose** command. CTD deletes files stored on temporary disk space after seven days. If you wish to save them, either move them to your permanent disk space or copy them to tape.

GRAPHICS NEWS

COMPUTER ASSOCIATES HOSTS GRAPHICS PRODUCT SEMINAR

Computer Associates (CA) International, Inc. (vendors of CA-Disspla, CA-Tellagraf, CA-Cuechart, and SuperImage) will hold a seminar in Building 221, Room A-216, on Tuesday, November 7, 1989, from 8:30 a.m. until 11:30 a.m., to discuss "What's New in Graphics Software from CA" (see the schedule appended to this *Newsletter*). Attendees will hear about the new features of CA-Disspla 11.0 (including the 3-D capability, raster imaging, Codebook, and run-time device selection) and CA-Tellagraf (including the 3-D capability, mapping, and menus) and SuperImage availability for VAX computers. Terry Hicks (Product Manager) and Arthur Wood (Product Consultant) will lead the discussion. From 1:00 p.m. until 3:00 p.m., there will be one-on-one sessions by appointment only.

For questions about the seminar and to make an appointment, call Mike Thommes at extension 2-5461.

MANAGEMENT INFORMATION SYSTEMS

MIS COMPLETES FY1989 PROJECTS

As the fiscal year draws to a close, MIS staff are reporting completion of the multiple projects recommended for FY1989 funding by the Administrative Data Processing Oversight Committee. In the Human Resource Systems area, projects included upgrading the Personnel/Payroll package; developing seven new systems for the Environment, Safety and Health System; enhancing the Integrated Medical System; and completing Phase I of the Human Resource System replacement.

Materials and Plant Systems concentrated on the initial phases of the multi-year project to develop the Integrated Materials Management System. In FY1989, the Support Services Division appointed an overall project manager, under whose leadership the project formed a users committee with members from all areas of the Laboratory, and

began to develop specifications based on input from the users group. Other projects funded by user departments and divisions include the Vehicle Maintenance System for Plant Facilities and Services and the Job Scheduling System.

The Integrated Financial System project began production cutover of the General Ledger, Financial Controller, and Information Expert segments of the purchased software package. Project staff has been working to refine the more than 200 critical reports while reporting the Laboratory's financial status to the Department of Energy on time. This major effort marks the beginning of the final phases of this long-term project, although further enhancements and additions will occur in the future.

INTEGRATED FINANCIAL SYSTEM USER REPORTS UPDATE

On Monday, September 11, 1989, Cost Accounting began distributing the critical financial reports to users. Both the Office of the Chief Financial Officer (OCF) and Management Information Systems (MIS) increased their allocated effort to expedite the development of user reports to provide the most critical reports as quickly as possible.

In August 1989, the Integrated Financial System (IFS) Project Team developed 24 additional IFS reports with the Information Expert fourth-generation language. Over 60 user reports with the same utility as the old Financial Information System (FIS) and Financial Management System (FMS) reports are now available and were run for the users by MIS at the end of the month. Currently, the IFS Project Team is developing nine additional non-critical user reports. Most of the remaining nine reports are simply awaiting final approval. The Financial Reports Working Group (FRWG) identified five user reports as necessary for the fiscal year-end. The IFS Project Team will develop eight user reports following the fiscal year-end. The FRWG has placed 25 user reports in "drop" status, because there is no call for them. Send suggested changes for the report format to your FRWG representative. The FRWG will collect the suggestions and forward them to the IFS Project Team.

The Project Team is also preparing for the fiscal year-end close and purge and has begun to work on the Materials and Services Tracking (MAST) interface. Users have identified correc-

tions to both the reporting database and the account identifiers.

Progress on all phases of the IFS project will be reported at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

TAPEUTIL AUTOMATICALLY UPDATES THE TAPE MANAGEMENT CATALOG

Recently, CTD has modified the TAPEUTIL tape utility in MVS to update automatically the CA-1 (formerly UCC-1) Tape Management Catalog (TMC) whenever it processes a tape. Many users have appreciated the amount of information provided by CA-1 for tapes created since CA-1's installation at Argonne, but have lamented the lack of a simple technique for incorporating the information from pre-existing tapes into the TMC (that is, currently identified as having a dataset name of UNKNOWN). These new changes to TAPEUTIL permit users to update the information maintained about their tapes by submitting a batch job to map a tape.

Previously, the only way to enter the dataset name and other relevant information from standard-label tapes into the catalog was to process the tape with one of the tape utilities to determine its characteristics. Then, you would either submit another job to process the dataset on the tape or provide the tape characteristics to the tape librarian so that she could manually update the TMC. Both of these techniques are cumbersome, labor intensive, and prone to errors.

With this latest version of TAPEUTIL, TAPEUTIL will automatically pull information from the labels of standard-labeled and ANSI-labeled tapes for inclusion in the TMC. No special commands or options are necessary on either the **MAP**, **DUMP**, or **BACKUP** commands. TAPEUTIL will apply the following information from the first dataset of a standard (or ANSI) label tape to the TMC: dataset name, creation date, block count, blocksize, logical record length (LRECL), creating jobname (SL only), creating stepname (SL only), and record format (RECFM). Additionally, TAPEUTIL will also keep the TMC informed of

the label type of a tape (NL, AL, or SL) as well as the internal label of a tape (AL or SL), when TAPEUTIL changes a label as the result of a **BACKUP** operation.

CTD recommends that users use TAPEUTIL to identify tapes listed in the TMC as UNKNOWN. You can then more easily decide whether to expire those volumes. To identify your UNKNOWN tapes to the TMC, use the following JCL:

```
//TMCUPDTE JOB REGION=120K
//TAPEUTIL EXEC TAPEUTIL, INVOL=tapevol
//SYSIN DD *
              OPTIONS PAGESIZE=55
              MAP
/*
```

While any of the TAPEUTIL commands (**BACKUP**, **DUMP**, or **MAP**) will update the TMC, **MAP** produces a condensed report displaying one line of information for each dataset on the tape.

The only anomaly in the update process is the inclusion of the dataset name into the TMC. Only the last 17 characters of the dataset name are stored in a tape dataset label, whereas MVS JCL and the Tape Management System allow the user to specify 44 characters. Thus, if the value found in the dataset name field of the tape label is exactly 17 characters long, TAPEUTIL cannot be sure if it has the entire dataset name or only its last 17 characters. In this situation, TAPEUTIL prefixes the dataset name with '...' to indicate that the prefix may be absent. If you subsequently process the tape dataset and provide the full dataset name, CA-1 will replace automatically the partial dataset name in the TMC entry for the tape with the full dataset name provided by you in the JCL.

Presently, TAPEUTIL does not accommodate dataset-managed tapes or permit users to convert volume-managed tapes to dataset-managed tapes. If you desire such a capability, contact John Volmer at (312) 972-5449 or at electronic mail address B32831@ANLVM. If sufficient interest is shown, CTD may try to extend the TMC update capability of TAPEUTIL to dataset-managed tapes.

There are no plans to install this capability into the other tape utilities (TAPEDUMP and TAPESCAN). The poor design of these utilities prohibits upgrading them to offer new capabilities. Moreover, CTD does not intend to modify either TAPEDUMP or TAPESCAN to permit them to work with the IBM 3480-type cartridge tape drives

now being acquired.

PERSONAL COMPUTING AND WORKSTATIONS

ALISASHARE FILE SERVER AVAILABLE FOR APPLE MACINTOSH

If you need more disk space on your Apple Macintosh, want to back up your Apple Macintosh hard disk, or want to archive infrequently used or large files, you may want to become an AlisaShare file server user. AlisaShare lets you use disk space on the central VAX cluster as though it were another Apple Macintosh disk. You can create files and folders on the AlisaShare disk, perform copy operations between a local disk and your AlisaShare disk, and launch applications from your AlisaShare disk. CTD backs up the AlisaShare disk space weekly and performs daily incremental back-ups. Currently, CTD is working on a recovery procedure for user's AlisaShare disks.

The amount of file server space available to your Apple Macintosh is limited only by the amount of space available to the central VAX cluster. You can create a file on the Cray X-MP/14 or on the VAX 8700 and place it in your AlisaShare file server space where it would be available to you from your Apple Macintosh. For example, you might create a file on the Cray X-MP/14 and place it with the **dispose** command in your AlisaShare file server space where it would be available to you from your Apple Macintosh. Conversely, you can move files from the Apple Macintosh to your file server space and access them from the VAX 8700. Since file formats and attributes are different between the Apple Macintosh and the VAX, the use of a file created on the other system may not be automatic and may need some conversion.

To become an AlisaShare file server user, you will need an account on the central VAX cluster. However, Apple Macintosh users need not log into the VAX to use their AlisaShare disks. Obtain a "Computing and Telecommunications Division Request for Authorization of Computer Account" form (available from Account Services, Building 221, Room A-147) and check "VAX/VMS" and "AlisaShare" as the services requested. There is a \$10 per month subscription fee. CTD will charge \$0.20 per megabyte day for any disk space you use.

You will also need to install Apple's AppleShare Version 2.0 or later in your Apple Macintosh system folder.

Several additional files that you may want to use are on the AlisaShare read-only Public Volume in AppleTalk zone Public AlisaTalk. This disk includes the latest copies of Apple's LaserWriter and LaserPrep files (Version 6.0), Telnet from the National Center for Supercomputing Applications (NCSA), NCSAImage, and a virus disinfectant program.

It is also possible for your cost center to create its own AlisaShare file server group disk to share data among all of the group's Apple Macintosh users. For example, your cost center could share a common database among its users. You could also use it for a bulletin board application or the distribution of the latest versions of your cost center's applications. To establish a cost center AlisaShare disk, your division director will need to appoint a group manager to manage the central VAX cluster environment for your cost center's users. For information about group managers, contact Rich Raffanetti at extension 2-8497 or Barry Miller at extension 2-6808.

For additional information on using AlisaShare with your Apple Macintosh, contact Dave Lifka at extension 2-3251.

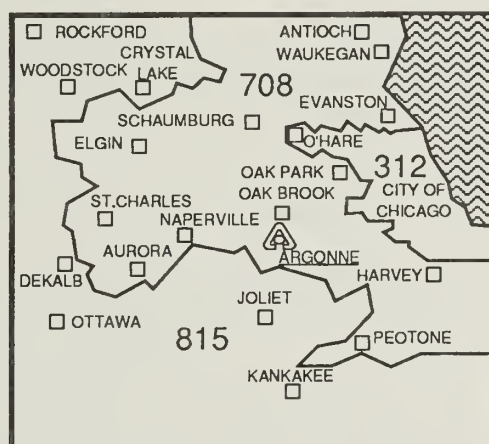
PREPARING APPLE MACINTOSH TELNET AND TN3270 USERS FOR TCP/IP ADDRESS CHANGE

In preparation for the Tuesday, October 17, 1989, Transmission Control Protocol/Internet Protocol (TCP/IP) address changes, CTD is providing new CONFIG.TEL files for Apple Macintosh Telnet and tn3270 users. The new CONFIG.TEL file is available in the AlisaShare **Public Volume** in AppleTalk zone **Public AlisaTalk**. This CONFIG.TEL file contains the new addresses for the name servers and gateways that will take affect on Tuesday, October 17, 1989. The public domain TEACH TEXT editor is also available; you can use it to edit your CONFIG.TEL file.

TELECOMMUNICATIONS NEWS

PREPARING FOR THE 708 AREA CODE

On November 11, 1989, Illinois Bell will change Argonne's area code from 312 to 708. Chicago will retain area code 312; the suburbs and outlying areas presently within area code 312 will change to area code 708. With this change, you will need to dial area code 312 to reach Chicago numbers. However, between November 11, 1989, and February 9, 1990, Illinois Bell will provide a "Transition Period" in which all calls will go through, even though you do not dial area code 312. There is *no change in the charge* for calls within the Chicago area between areas 312 and 708.



Telephone Services encourages each Argonne organization to make a list of all the places where employee or organization telephone numbers appear (for example, directories, membership listings, stationery, business forms, and business cards). This list will serve as a checklist of items that you will need to update. Also, it is important to check and change (if necessary) all the telephone numbers in computer programs and the abbreviated dial numbers for your telephone. Telephone Services will re-program the Private Branch Exchange (PBX) for proper call routing to the various outgoing trunk groups.

TCP/IP ADDRESSES CHANGE ON OCTOBER 17, 1989

CTD plans to install a Transmission Control Protocol/Internet Protocol (TCP/IP) addressing scheme (known as subnetting) that will affect all computers at the Laboratory that use TCP/IP. Currently, several hundred host computers run TCP/IP at Argonne. Argonne has been assigned an Internet Class B address (130.202.xxx.xxx) and more than a dozen Internet Class C addresses. Subnet addressing will allow us to subdivide our Class B address space (65,536 addresses) into multiple physical networks and to eliminate the use of the Internet Class C addresses.

We plan to install TCP/IP subnetting in a phased approach. Currently, external TCP/IP networks (such as NSFnet) view Argonne as more than a dozen separate networks. After the installation of subnetting is complete, external TCP/IP networks will refer to Argonne as a single unified network. A single network address per site is much more efficient and manageable for TCP/IP network administrators.

Phase I of the forthcoming changes requires that all Argonne host computers on the Laboratory-wide backbone using the TCP/IP protocol change their IP address. CTD will contact host administrators and will assign the new IP numbers and subnet masks. On Tuesday, October 17, 1989, all hosts on the ANL Laboratory-wide TCP/IP backbone (130.202.xxx.xxx) will have to change their address. In Phase II, CTD will contact administrators of separate Class C networks to have them change their addresses to subnets of the Class B address. Phase II will be conducted one network at a time beginning early in November 1989.

If your computer is using domain name service to resolve host names to IP addresses, you will not need to change your host table for each of these network changes. However, you will need to change the address of the name servers that your host will query (see Table 3). If your host relies on the host table for name-to-address resolution, CTD will provide up-to-date host tables as changes occur.

If you have any questions about these changes, contact the Network Section at extension 2-7236.

Table 3: ANL Internet Addresses (Effective October 17, 1989)

NODE	IP ADDRESS	FUNCTION
CISCO.CTD.ANL.GOV	130.202.20.33	primary gateway
SUNGATE.CTD.ANL.GOV	130.202.20.5	primary name server and secondary gateway
ANLCV1.CTD.ANL.GOV	130.202.20.3	secondary name server

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,840 computers at over 1,010 sites. Since the last *Newsletter* article in August 1989, the following universities and organizations have joined BITnet:

Catlin Gabel School--Portland, Oregon
 Center for Scientific and Medical Information--
 Villeurbanne
 Eastern Mediterranean University--Mersin, Turkey
 Federal University of Mines--Brazil
 Gakushuin University--Japan
 IBM Kuwait Scientific Center
 Institute of Chemistry and Natural Substances--
 Gif sur Yvette
 Institute of Public Administration--Riyadh
 International University of Japan Niigata
 Islamic Research and Training Institute--Jeddah
 King Abdulaziz University--Jeddah
 King Faisal University--Al-Hofouf, Saudi Arabia
 King Saud University--Riyadh
 Kuwait Institute for Scientific Research
 Kuwait University
 Naruto University of Education
 Oak Ridge Associated Universities
 Plataforma Solar--Almeria, Spain
 Rhode Island College
 Saint John's University--Jamaica, New York
 Umm Ulqura University--Mecca
 University of Hohenheim
 University of Petroleum and Minerals--
 Dhahran, Saudi Arabia

For a complete list of organizations in the BIT-net network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

HELP BITNET NODES

This list contains the initial set of nodes in GULFnet, the NJE network in the Persian Gulf.

VAX/VMS NEWS

VMS BATCH SCHEDULING POLICY CHANGED

CTD has changed its policy for scheduling batch jobs that execute from the SPECIAL queues. It will be easier to submit long jobs and jobs that require large memory. Now, the operators will start jobs in the SPECIAL_X_BATCH and SPECIAL_Y_BATCH queues whose CPU time limits are less than three and eight hours respectively without requiring you to inform them beforehand to expect such jobs. However, you must still notify the consultants (extension 2-5405) or the operators (extension 2-5421) for SPECIAL queue jobs that exceed these limits to allow the operators to ensure that long-running jobs are not terminated by scheduled maintenance activities.

If you omit the /CPUTIME option when you submit your batch job to one of the SPECIAL queues, your job will show an "infinite" time limit. Therefore, to take advantage of the new policy, you must add the /CPUTIME option when submitting your job. For example, to submit the DCL command procedure LONGJOB.COM with a CPU time limit of three hours to the SPECIAL_X_BATCH queue, enter:

```
$ SUBMIT LONGJOB /CPUTIME=3:00
/QUEUE=SPECIAL_X_BATCH
```

The operators can view the CPUTIME value and that will enable them to schedule the jobs based on the value supplied by you.

Jobs in X_BATCH queues are normally scheduled during the off-prime, overnight shift; jobs in Y_BATCH queues are normally held for the week-

end shift. However, these guidelines can be relaxed, depending on the processing load. For further details on the policy for scheduling batch jobs, see "How Batch Job Scheduling Works on the Central VAX Cluster" in the April 1989 *Newsletter*. Also, see *Computing and Telecommunications Division Rates*, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To learn about other options of the VMS **SUBMIT** command, enter:

```
$ HELP SUBMIT
```

NAG LIBRARY UPDATED TO MARK 13 VERSION

On Monday, October 9, 1989, the Numerical Algorithms Group, Ltd. (NAG) Mark 13 version of the NAG library will become the production version on the central VAX 8700, replacing Mark 12. It has been available for user testing since July 1989 (see "NAG Mark 13 Available for Testing on the VAX 8700" in the July 1989 *Newsletter*).

Currently, the default version of the NAG library is Mark 12. To use Mark 12, enter:

```
$ SETUP NAG /V=MARK12
```

The version is optional. Use /V=MARK13 to test the new version.

After October 9, 1989, specify /V=MARK12 to get the old version; the default will be MARK13.

After you have set up the Mark 13 version, to display a description of the differences between Mark 12 and Mark 13, enter:

```
$ HELP @NAG MARK13
```

CTD will remove Mark 12 from the VAX 8700 on Thursday, November 16, 1989. If you have any questions or difficulties, contact the User Services consultants at extension 2-5405.

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new CTD documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

ANL Site Response for the DOE FY1991 Information Technology Resources Long-Range Plan (ANL/TM 466) is one of many contributions to the DOE information technology resources long-range planning process. It provides data on these resources over an eight year period consisting of the base year (FY1988), the current year (FY1989), the budget year (FY1990), the plan year (FY1991), and the out years (FY1992-FY1995). This document consists of four parts: Part 1, "Site Overview," describes the ANL Mission, overall organization structure, the strategic approach toward meeting information technology resource needs, the planning process, major issues, and points of contact. Part 2A, "IS Plans for DOE Contractors," defines the current and planned automated information systems associated with the management of ANL, the stewardship of its resources, and the provision of day-to-day general operations and services. Part 3, "Computing Resources Plan," defines the requirements, resources, acquisitions, and budget for computing at ANL for FY1988 to FY1995. Part 4, "Telecommunications Plan," documents the existing and planned telecommunications resources required at ANL from FY1988 through FY1995.

A September 1989 addendum to the *VM/ System Product CMS Primer for Line-Oriented Terminals*, Release 6 (SC24-5236-04), summarizes the installation-dependent features of the local Argonne VM/SP enhancements available to Argonne users.

Cray Research, Inc. Documents

UNICOS User Commands Ready Reference (SQ-2056 5.0) provides condensed descriptions of the UNICOS user commands available on all Cray computer systems.

UNICOS Shell and Variable Ready Reference (SQ-2060) provides a quick reference for UNICOS users who want to customize their environments by using the C or Bourne shell. The handbook covers the following topics: identifying and changing shells, operating in the Bourne shell, operating in the C shell, and environment variables for use with either shell. Readers should have a general knowledge of shells and shell scripts.

The *UNICOS User Commands Reference Manual* (SR-2011 5.0) provides descriptions of commands and application programs for system users of the Cray operating system, UNICOS. It supplements the information contained in the other manuals in the UNICOS document set. This *Manual* describes programs that the user invokes directly or by command language procedures. Many commands reside in the directory "/bin" (for binary programs). Programs can also reside in "/usr/bin," "/usr/ucb" (those commands ported from the Fourth Berkeley Software Distribution), "/lib," and "/usr/lib." The command interpreter (called the "shell") automatically searches the "/bin," "/usr/bin," and "/usr/ucb" directories. You must change the path (or specify the path on the command line) if you want to use a command in "/etc," "/lib," or "/usr/lib." The commands for which this is necessary are specified with their full pathnames in the "SYNOPSIS" section on the man page. This *Manual* also provides feature changes to the UNICOS Version 5.0 release. This *Manual* is a reference manual for UNICOS programmers and assumes that the reader has a working knowledge of either the Cray operating system or the UNIX operating system. This *Manual* supersedes the *Cray Computer Systems: UNICOS User Commands Reference Manual* (SR-2011).

The *UNICOS CDBX Symbolic Debugger Reference Manual* (SR-2091 5.0) describes the CDBX symbolic debugger, available with UNICOS Release 5.0 and running on all Cray computer systems. This *Manual* is for programmers and others who run applications written in CAL, CFT, CFT2, CRT77, C, and Pascal. Readers should have a working knowledge of either the UNICOS or Unix

operating systems, plus the language in which their application programs are written.

The *UNICOS CDBX Debugger User's Guide* (SG-2094 5.0) describes the CDBX symbolic debugger (available with UNICOS Release 5.0 and running on all Cray computer systems), explains the ways in which you may work with the CDBX debugger, and provides examples of commonly used commands. This *Guide* is a reference manual for programmers and others who run applications written in CAL, CFT, CFT2, CFT77, C, and Pascal. Readers should have a working knowledge of either the UNICOS or Unix operating systems, plus the language in which their application programs are written.

Volume 1: UNICOS Fortran Library Reference Manual (SR-2079 5.0) describes Fortran-callable subprograms and routines available to users of the Cray operating system, UNICOS, running on all Cray computer systems. It supplements the information contained in other manuals in the UNICOS documentation set. Readers should have a working knowledge of either the UNICOS or Unix operating system.

Volume 3: UNICOS Math and Scientific Library Reference Manual (SR-2081 5.0) documents the math and scientific library routines available to users of the Cray operating system, UNICOS. It supplements the information contained in the other manuals in the UNICOS documentation set. Readers should have a working knowledge of either the UNICOS or Unix operating system.

IBM documents

The *C Compiler User's Guide for VM/CMS* (SC09-1130-01) is a reference guide for programmers writing C programs under CMS on the System/370 architecture. It provides an overview of how the compiler works and explains how to compile, link, execute, and debug programs by using the System/370 C Compiler on CMS. Readers should be familiar with CMS.

The *C Language Manual* (SC09-1128-01) describes the C programming language and associated C library for the System/370 architecture running CMS, MVS, or MVS/XA. It serves as a reference guide for programmers writing programs in the C language. Readers should have a working knowledge of programming fundamentals.

Computer Associates Documents

The *CA-Graphics Connection User Guide* describes the CA-Graphics Connection mainframe system available for CMS users.

The *CA-DISSPLA Codebook: Guide to Making CA-DISSPLA Codebook Masters* describes the Codebook interactive option of Disspla and the different Codebook files and subfiles, explains the individual processor commands and their parameters, and shows how to use processor commands together to get input, loop, test conditions, include new subfiles, and direct output. Readers should have a working knowledge of Fortran and Disspla.

The *CA-DISSPLA Codebook User Guide* describes the Codebook option of Disspla and its features and uses and discusses Codebook terminology. This *Guide* is for both experienced and novice CA-Disspla users.

Other Vendor Documents

NCSA Telnet for the PC Version 2.2TN and Version 2.2D describes the enhancements added by Clarkson University to Version 2.2 of NCSA Telnet, which provides interactive access from and IBM PC or compatible access to Telnet hosts on Transmission Control Protocol/Internet Protocol (TCP/IP) networks.

A September 1989 addendum to *NCSA Telnet for the PC Version 2.2TN and Version 2.2D* summarizes the specific requirements and features of NCSA Image (Version 2) that are available for IBM Personal Computer or IBM PC compatible users at ANL.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD SEPTEMBER 5, 1989

Dotti Bingaman (Energy and Environmental Systems) opened the meeting at 3:05 p.m.

New Charges. Bob McMahon (Computing and Telecommunications) reported on new charges for communication interfaces that will take effect on October 1, 1989. On that date, those users connected to communications through the Hydra (extension 2-3270), the X.25 (extension 2-2525),

the Transmission Control Protocol/Internet Protocol (TCP/IP) terminal server (extension 2-5588), or the DEC terminal server (extension 2-8700) will have their cost center billed at a rate of \$0.006 per minute. These charges will appear in the computing charges under miscellaneous central communication equipment. CTD instituted these new charges to cover the cost of equipment, software, operation, and maintenance. (See "Charging for Access to Central Communication Equipment Revised" in the September 1989 *Newsletter*.)

Users asked questions about providing a time-out service on the communications servers. This service would terminate after a specified time of inactivity to help users who forgot to disconnect from the communications servers. CTD will study the various systems.

AlisaTalk Print and File Services and Charges. Barry Miller (Computing and Telecommunications) reported on the new features made possible with the AlisaTalk program. Users with Apple Macintosh computers on an AppleTalk network will be able to send PostScript printer files to printers on the AppleTalk network (including the devices at Graphic Arts) with the AlisaPrint driver. To set up an AppleTalk printer for access on the network, there is a \$50 set-up fee, a \$10 per month maintenance charge, and a \$0.10 per 1,000 line charge.

The use of AlisaShare allows users of Apple Macintoshes to access the VAX disk storage as if it were Apple Macintosh disk storage. There is a \$10 per month charge of file disk and the usual \$0.20 per megabyte day VAX disk storage charge. (See "AlisaTalk Extends NJE Printing to AppleTalk Networks" in the September 1989 *Newsletter*.)

RACF-Protected Minidisks on VM. Fred Moszur (Computing and Telecommunications) reported on plans to protect the minidisks on VM with RACF. For detailed information on how to change the access authorization for your minidisks, see "Using RACF To Control Minidisk Access" in the September 1989 *Newsletter*. Individual users can permit or deny access to their minidisks. After November 6, 1989, CTD will issue all new minidisks with read and write access only to the user. The user can change this access. Once a minidisk is RACF-protected, the owner will not need to issue a password to the users who need to link to it.

The users asked questions about the ability of RACF managers to change the authorization of a user's minidisk, if the user were absent or unable to be reached. CTD will look into these questions. A user asked if the MVS disk files will eventually receive this type of protection. Users can now protect datasets on MVS with RACF. In the future, CTD would like to have this type of protection for all MVS disks.

Proposed Discontinuation of Software. Fred discussed the plans to discontinue offering the Fortran G1 compiler and the Statistical Analysis System/Econometric Time Series (SAS/ETS) in MVS and Mass-11 on the VAX 8700. There are several software products that are rarely used. CTD could cut expenses by eliminating them. (See "Plans To Discontinue Fortran G1 Availability in MVS and CMS" in the September 1989 *Newsletter*). The G1 compiler in MVS and CMS is on a month-to-month contract. CTD has renewed Mass-11 for another year.

The main response came from users who rely on the Mass-11 product to fulfill part of their computer security plan and would not like to have the VAX 8700 Mass-11 version disappear. They felt the rather minimal cost for the package could be raised. Additional discussion centered on the possibility of removing products that exist on several systems rather than removing products that provide unique capabilities. CTD will look into this suggestion.

NFS on the Cray. Doug Engert (Computing and Telecommunications) discussed the availability of the Sun Network File System (NFS) on the Cray. Remote nodes can access the /n2 file system on the Cray and can use NFS. This situation will allow the Cray to operate independently from remote nodes, so that difficulties with a remote node going down will not affect the rest of the user community. Also, the use of NFS instead of `rcp` will allow better use of Cray resources. The only difficulty raised by users was the added expense of keeping files on Cray disks--the highest rate of all disk storage. (See "Network File System Available for Cray Supercomputing" in this *Newsletter*.)

Doug asked that users interested in helping to test the system contact him at extension 2-5444 or Joe Midlock at extension 2-5447.

FDDI Project Status. Larry Amiot (Computing and Telecommunications) discussed the status

of the Fiber Distributed Data Interface (FDDI) project. This project would provide a fiber-optic, fault tolerant, Laboratory-wide network operating at 100 megabits per second. The network would be a dual-ring, counter-rotating system that would provide fast access. The network could be up to 200 kilometers long with 2 kilometers between nodes and would handle Ethernet protocols. The system would be accessed through local area network (LAN) bridges, host interfaces, or multi-line concentrators and would be attached through connecting to both rings or a single ring (depending on the degree of fault tolerance required). Initially, CTD will install a prototype network that will interconnect Building 221 and Building 360. CTD has requested FY1990 General Physical Plant funds that will provide a Laboratory-wide FDDI network.

Cartridge Tape Drives Ordered. Jerry Davison (Computing and Telecommunications) gave an update on the purchase of IBM 3480-type cartridge tape drives. CTD issued a purchase order to Storage Technology for their 4480 cartridge tape system. There will be two dual-drive units that allow the use of automatic tape loading and a four-drive unit. There is a controller with a four-channel interface and an interface for a future second controller. CTD will install the system toward the end of September 1989 with a late October 1989 acceptance.

The meeting adjourned at 4:50 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD SEPTEMBER 13, 1989

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m.

Lee Wagar (Graphic Arts) talked about output devices in Graphic Arts (including the Linotype

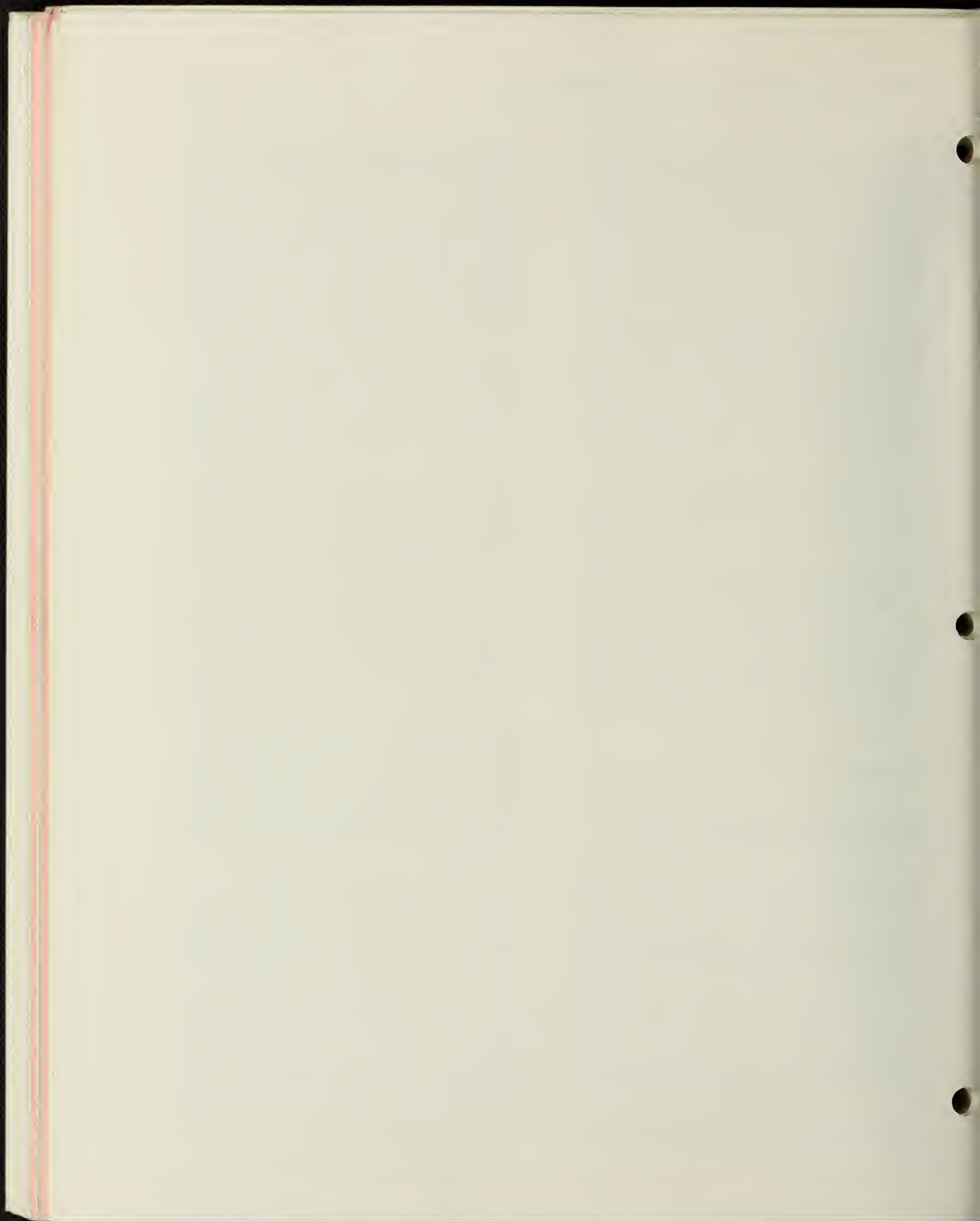
high-resolution imagesetter, the QMS 2200 11-by-17 laser printer, and the QMS color PostScript printer). All of these output devices are available, if the user is on a LocalTalk network connected to the main EtherTalk network for the Laboratory. The color PostScript printer works with the following Apple Macintosh programs: Adobe Illustrator 88, Aldus FreeHand, Mathematica, Quark XPress 2.00A, and Ready, Set, Go!4.5. It does not work with the following Apple Macintosh programs, because they do not presently permit color PostScript: MacDraw II, Aldus Persuasion, and Cambridge Scientific Chem3D Plus 2.0. Deneba Canvas. (Some additional software is capable of printing in color and was only waiting for Laser Printer Drivers 6.0. The programs that now print in color include Cricket Presents 2.0, Cricket Graph 1.3, Microsoft PowerPoint 2.01, Deneba Canvas 2.0, Synergy KaleidaGraph 1.1, and Broderbund Drawing Table 1.0.) If you want to use these devices, call Michele Szawars at extension 2-7062 before sending your job. If you want a tour of Graphic Arts or a demonstration of the equipment, call Linda Graf at extension 2-3760.

Lee mentioned that other devices for making color slides are also available from Apple Macintosh output. To use these devices, bring your disk to Graphic Arts (Building 222) or send the files via QuickMail.

The Apple Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 11:50 a.m.

Ralph Leonard, Macintosh Users Group Secretary



WORKLOAD STATISTICS (JULY 31 THROUGH AUGUST 30, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,262	1,264	473
Wylbur	1,658	1,657	414
MVS TSO	54	54	9
CICS	1,658	1,657	97
MVS Batch	2,097	2,111	643
VAX/VMS	427	438	239
Cray	401	419	139
All Systems	2,097	2,111	963

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	13,272	2,327	1,403	17,002	36,743.5	112.77
Wylbur	9,174	379	394	9,947	8,501.1	10.36
MVS TSO	84	0	2	86	168.3	0.52
CICS	57	42	19	118	0.0	5.09
VAX/VMS	9,293	820	746	10,859	16,170.5	194.35
Cray	205	410	97	712	1,137.3	79.68
IBM BATCH						
Class U	10,766	2,029	1,187	13,982	n.a.	49.34
Class W	16,733	1,390	996	29,119	n.a.	142.14
Class X	5	1,005	60	1,070	n.a.	88.08
Class Y	6030	0	964	6,994	n.a.	27.23
Nonmain	23,646	3,690	1,691	29,027	n.a.	0.00
Total	57,180	8,114	4,898	80,192	n.a.	306.79
CRAY BATCH						
u	205	410	97	712	n.a.	79.68
w	3,073	359	299	3,731	n.a.	99.59
x	955	135	124	1,214	n.a.	82.62
y	6,030	1,518	1,016	8,564	n.a.	183.34
Total	10,263	2,422	1,536	14,221	n.a.	445.23
VMS BATCH						
W BATCH	2,596	1,736	1,218	550	n.a.	46.59
X BATCH	9	12	6	26	n.a.	29.85
Y BATCH	0	1	19	20	n.a.	9.80
Total	2,605	1,749	1,243	596	n.a.	86.24

INPUT/OUTPUT

Lines Printed	
Local	68,655,779
Remote	50,482,118
Fiche	32,637,367
Cards Punched-Local Only	8,107
Tape Mounts	7,934
Microfiche Developed	3,977
Microfiche Frames Developed	676,505

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	30	n.a.
Matrix 35mm Color	109	354
Matrix-8 x 10	48	48
Matrix-Negative	17	49
FR80 Film Plots		
35mm Black/White/Unsprocketed	8	80
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	7	13,230
16mm Color	3	3,799

DATA MANAGEMENT

Tapes Stored	22,119
New Tapes Saved	1,229
Tapes Released	1,886
Datasets Exported to Tape	487
Datasets Imported from Tape	624

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (JULY 31 THROUGH AUGUST 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	12.00	1.00	7.00		2.00	2.00	
Hrs Unavailable	9.86	0.66	7.05		1.40	0.75	
MTF/Unscheduled	183.53				367.06	367.06	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12.00	1.00	7.00		2.00	2.00	
Hrs Unavailable	9.86	0.66	7.05		1.40	0.75	
MTF/Unscheduled	66.53				133.06	133.06	
RED IBM 3033							
All Shifts							
Interruptions	2.00		1.00		1.00		
Hrs Unavailable	3.18		0.80		2.38		
MTF/Unscheduled	740.81				740.81		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00		1.00				
Hrs Unavailable	0.80		0.80				
MTF/Unscheduled							

AVAILABILITY STATISTICS, BY SERVICE (JULY 31 THROUGH AUGUST 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	2.00		1.00		1.00		
Hrs Unavailable	3.18		0.80		2.38		
MTF/Unscheduled	740.81				740.81		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00		1.00				
Hrs Unavailable	0.80		0.80				
MTF/Unscheduled							
NYLBUR							
All Shifts							
Interruptions	16.00	1.00	7.00		4.00	4.00	
Hrs Unavailable	12.25	0.71	7.65		2.46	1.41	
MTF/Unscheduled	91.46				182.93	182.93	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15.00	1.00	7.00		3.00	4.00	
Hrs Unavailable	11.75	0.71	7.65		1.96	1.41	
MTF/Unscheduled	37.75				88.08	66.06	
MVS TSO							
All Shifts							
Interruptions	13.00	1.00	7.00		3.00	2.00	
Hrs Unavailable	11.43	0.71	7.65		2.05	1.01	
MTF/Unscheduled	146.51				244.18	366.28	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12.00	1.00	7.00		2.00	2.00	
Hrs Unavailable	10.93	0.71	7.65		1.55	1.01	
MTF/Unscheduled	66.26				132.53	132.53	
JES3							
All Shifts							
Interruptions	12.00	1.00	7.00		2.00	2.00	
Hrs Unavailable	10.20	0.66	7.20		1.40	0.93	
MTF/Unscheduled	183.45				366.90	366.90	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12.00	1.00	7.00		2.00	2.00	
Hrs Unavailable	10.20	0.66	7.20		1.40	0.93	
MTF/Unscheduled	66.45				132.90	132.90	
CICS							
All Shifts							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	0.95				0.55	0.40	
MTF/Unscheduled	371.52				743.05	743.05	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	0.95				0.55	0.40	
MTF/Unscheduled	137.52				275.05	275.05	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	8.00	2.00	5.00		1.00		
Hrs Unavailable	13.65	4.56	5.66		3.41		
MTF/Unscheduled	730.35				730.35		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7.00	2.00	5.00				
Hrs Unavailable	10.23	4.56	5.66				
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	18.00	10.00	3.00		2.00	2.00	1.00
Hrs Unavailable	50.48	20.61	1.50		26.53	1.75	0.08
MTF/Unscheduled	138.70				346.75	346.75	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	8.00		3.00		2.00	2.00	1.00
Hrs Unavailable	29.86		1.50		26.53	1.75	0.08
MTF/Unscheduled	49.22				123.06	123.06	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JULY 31 THROUGH AUGUST 30, 1989)

CC	CNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	\$981	\$245	\$0	\$1,301	\$2,528
272	ADVANCED PHOTON SOURCE	\$34	\$0	\$0	\$10	\$44
SUBTOTAL		\$1,015	\$245	\$0	\$1,312	\$2,572
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO, ENVIR, & MED RES DIV	\$1,642	\$11,102	\$137	\$1,760	\$14,641
149	BEM DIV-CTR FOR ENVIR RES	\$1,863	\$124	\$36	\$993	\$3,017
174	ENER/ENV/BIO RES PROG DIR	\$181	\$0	\$0	\$52	\$233
190	ENERGY & ENVIR SYST DIV	\$10,974	\$11,629	\$413	\$6,267	\$29,283
197	OFF OF INTER ENERGY DEV PROGS	\$417	\$14	\$0	\$61	\$492
246	TIS - NATL ENERGY SOFTWARE CT	\$78	\$0	\$0	\$846	\$925
274	ENER/ENV/BIO RES PROG ADM	\$98	\$0	\$0	\$83	\$181
SUBTOTAL		\$15,254	\$22,870	\$586	\$10,062	\$48,772
ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	\$2,890	\$32	\$1,693	\$420	\$5,035
104	EBR-II PROJECT-ILLINOIS	\$5,877	\$481	\$756	\$3,127	\$10,241
107	CHEMICAL TECHNOLOGY DIVISION	\$1,296	\$0	\$0	\$1,010	\$2,400
112	REACTOR ANAL & SAFETY	\$17,488	\$447	\$4,832	\$8,709	\$31,476
114	MATLS & COMP TECH DIV	\$6,173	\$3,900	\$8	\$3,559	\$13,641
115	ENGINEERING DIV - ILL	\$1,893	\$880	\$360	\$2,168	\$5,301
116	APPLIED PHYSICS-ILLINOIS	\$33,693	\$3,266	\$31,609	\$11,474	\$80,044
117	APPLIED PHYSICS-ANL WEST	\$4,225	\$13	\$3,736	\$571	\$8,544
118	REACTOR EXP & EXAM DIV	\$4,499	\$331	\$325	\$166	\$5,320
119	ANALYTICAL LABORATORY ANL-WES	\$0	\$0	\$0	\$36	\$36
171	ENGRG RES PROG DIR	\$4	\$0	\$0	\$86	\$90
178	FUSION POWER PROGRAM	\$251	\$18	\$0	\$71	\$340
211	ENG DIV-DESIGN ENG DEPT	\$51	\$0	\$0	\$2,665	\$2,716
269	CHEM TECH DIV-ANALYTICAL CHEM	\$63	\$0	\$0	\$40	\$103
271	ENGRG RES PROG ADMIN	\$304	\$0	\$0	\$191	\$496
SUBTOTAL		\$78,707	\$9,462	\$43,318	\$34,293	\$165,780
PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	\$4,557	\$3,783	\$1,197	\$1,987	\$11,524
109	PHYSICS DIV	\$2,655	\$1,362	\$175	\$1,414	\$5,606
120	CHEMISTRY DIV	\$933	\$4,119	\$262	\$1,424	\$6,739
136	INT PULSED NEUT SOURCE PROG	\$128	\$686	\$801	\$735	\$2,349
137	HIGH ENERGY PHYSICS DIV	\$775	\$3,490	\$18,174	\$1,320	\$23,758
139	DIV OF EDUCATIONAL PROGRAMS	\$723	\$0	\$0	\$609	\$1,331
145	MATHEMATICS & COMPUTER SCI DI	\$143	\$19	\$2,194	\$3,026	\$5,381
146	SCIENTIFIC APPLICATIONS RESEAR	\$205	\$1,828	\$1,646	\$1,644	\$5,323
245	COMPUTING & TELECOMMUNICATION	\$13,583	\$0	\$0	\$4,849	\$18,432
247	CTD - COMMUNICATIONS SERVICES	\$2,067	\$0	\$0	\$1,276	\$3,343
273	PHYSICAL RESEARCH PROGRAM ADM	\$105	\$0	\$0	\$46	\$151
SUBTOTAL		\$25,873	\$15,287	\$24,450	\$18,329	\$83,938
EXTERNAL						
750	ACK WORK PROJECTS	\$206	\$32	\$7	\$162	\$406
751	FERMI NATIONAL LABORATORY	\$856	\$0	\$0	\$865	\$1,720
752	NAVY	\$12,623	\$0	\$0	\$6,129	\$18,752
753	MORGANTOWN ENERGY TECH CENTER	\$17	\$0	\$0	\$650	\$667
754	DOE-CH AT ANL	\$16	\$0	\$0	\$0	\$16
757	ACK WORK PROJECTS	\$378	\$0	\$0	\$668	\$1,046
760	ABBOTT LABORATORIES	\$13	\$266	\$2,427	\$0	\$2,707
762	STATE UNIVERSITY OF NEW YORK	\$98	\$463	\$15,681	\$433	\$16,675
763	GENERAL ELECTRIC COMPANY	\$0	\$0	\$0	\$0	\$0
766	BECHTEL NATIONAL INC.	\$14	\$454	\$1,051	\$35	\$1,554
767	NUMERICAL ALGORITHMS GROUP INC.	\$0	\$0	\$0	\$0	\$0
SUBTOTAL		\$14,220	\$1,215	\$19,167	\$8,942	\$43,543
OPERATIONS						
143	SUPP SERV DIV - ELEC DEPT	\$124	\$11	\$0	\$250	\$385
148	HUMAN RESOURCES-HEALTH DEPT	\$1,203	\$0	\$0	\$361	\$1,564
150	PLANT FAC & SERV - SPEC MATLS	\$206	\$0	\$0	\$132	\$339
161	TECH INFO SERVICES DEPT	\$1,256	\$0	\$0	\$2,685	\$3,941
201	OFFICE OF THE DIRECTOR	\$396	\$0	\$0	\$417	\$813
202	OFC OF CHIEF OPER OFCR	\$37	\$0	\$0	\$144	\$180
210	SUPP SERV DIV - CENT SHOPS	\$160	\$0	\$0	\$82	\$243
216	SUPPORT SERVICES DIVISION	\$267	\$0	\$0	\$61	\$328
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$36	\$36
232	PLANT FAC & SERV-SECURITY	\$359	\$0	\$0	\$73	\$432
234	SUPP SERV DIV-OHS-HEALTH PHY	\$281	\$0	\$0	\$106	\$387
235	SUPP SERV DIV-ENV SAFE HEALTH	\$959	\$0	\$0	\$389	\$1,348
236	PLANT FAC & SERV-FIRE DEPT	\$0	\$0	\$0	\$36	\$36
260	SUPP SERV DIV-GRAPHIC ARTS	\$193	\$12	\$0	\$877	\$1,082
275	OFFICE OF PUBLIC AFFAIRS	\$506	\$0	\$0	\$61	\$567
276	OFC PUB AF - MOTN PIC UNIT	\$33	\$0	\$0	\$3	\$36
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$285	\$285
315	SUPP SERV DIV-MATLS & SERV	\$3,502	\$0	\$0	\$557	\$4,058
316	PLANT FAC & SERV-VEH MAINT	\$1	\$0	\$0	\$95	\$95
317	PLANT FAC & SERV-DRIV&RIG SER	\$13	\$0	\$0	\$36	\$49
319	SUPP SERV DIV-TRAVEL OFC	\$587	\$0	\$0	\$36	\$623
322	SUPP SERV DIV-PROCUREMENT	\$42	\$0	\$0	\$46	\$88
333	QA, ENVIR & SAFETY OFC	\$153	\$0	\$0	\$108	\$260
350	APS	\$8	\$0	\$0	\$0	\$8
361	APS PROJECT DIRECTION	\$13	\$0	\$0	\$0	\$13
362	APS	\$17	\$0	\$0	\$0	\$17
400	OFC OF CHIEF FIN OFFICER	\$68,437	\$0	\$0	\$13,276	\$81,714
401	ACCOUNTING	\$0	\$0	\$0	\$36	\$36
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$13	\$0	\$0	\$125	\$138
403	BUDGET OFFICE	\$0	\$0	\$0	\$36	\$36
410	HUMAN RESOURCES DEPARTMENT	\$12,713	\$0	\$0	\$-473	\$12,239
412	AFFIRM ACTION PROGRAM	\$172	\$0	\$0	\$177	\$349
501	PLANT FAC & SERV-BLDG MAINT	\$35	\$0	\$0	\$107	\$142
502	PLANT FAC & SERV-INSTALLATION	\$0	\$0	\$0	\$36	\$36
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$36	\$36
504	PLANT FAC & SERV-CUSTODIAL	\$0	\$0	\$0	\$36	\$36
505	PLANT FAC & SERV-WASTE MGMT O	\$71	\$0	\$0	\$71	\$142
506	PLANT FAC & SERV-PLANT MGR OF	\$231	\$0	\$0	\$72	\$303
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$59	\$59
512	PLANT FAC & SERV-FAC PLNG/ENG	\$491	\$0	\$0	\$253	\$744
530	SITE MGRS OFC-ANL WEST	\$36	\$0	\$0	\$37	\$73
531	PERSONNEL-ANL WEST	\$174	\$0	\$0	\$36	\$210
532	SPECIAL MATLS-ANL WEST	\$1,481	\$0	\$0	\$457	\$1,938
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$36	\$36
534	PURCHASING-ANL WEST	\$13	\$0	\$0	\$36	\$49
535	SECURITY - ANL WEST	\$21	\$0	\$0	\$36	\$57
536	SAFETY STAFF-ANL WEST	\$268	\$0	\$0	\$43	\$311
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$36	\$36
538	MATLS HANDLING-ANL WEST	\$205	\$0	\$0	\$36	\$241
550	COMPUTER APPL & SERV - ANL-W	\$114	\$0	\$0	\$38	\$151
551	RAD MONITORING-ANL WEST	\$8	\$0	\$0	\$36	\$44
554	MACHINE SHOP-ANL WEST	\$26	\$0	\$0	\$36	\$62
556	SITE ENGRG-ANL WEST	\$134	\$143	\$0	\$36	\$313
557	PLANT SERVICES-AW-SERVICE REQ	\$117	\$0	\$0	\$46	\$162
558	PLANT SERVICES-AW-FUNCTION	\$4	\$0	\$0	\$0	\$4
559	FOOD SERVICES - ANL WEST	\$0	\$0	\$0	\$36	\$36
561	OFC OF QUALITY ASSURANCE - AW	\$4	\$0	\$0	\$37	\$41
563	TALENT RESOURCE POOL-ANL WEST	\$0	\$0	\$0	\$36	\$36
730	OPERATING WORK PROJECTS	\$0	\$0	\$0	\$0	\$0
SUBTOTAL		\$95,080	\$167	\$0	\$21,774	\$117,021
TOTAL		\$230,149	\$49,246	\$87,521	\$94,710	\$461,626

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
October and November 1989

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering three classes, one demonstration, and one seminar. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

USING THE CRAY X-MP/14 FROM THE MVS STATION (RESCHEDULED)

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the MVS front-end station so that you can submit Cray jobs from CMS, MVS, and VAX/VMS systems.

Prerequisite: "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.

Length of Class: One 3-hour session

Date and Time: October 24, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Pete Bertoncini

USING COMPUTER-BASED TRAINING (RESCHEDULED)

Goals: To learn how to use computer-based training (CBT) courses in CMS.

Length of Demonstration: One hour

Date and Time: October 25, 1989 (Wednesday), 9:30 a.m. to 10:30 a.m.

Location: Building 221, Room A-261

Instructor: Dave Leibfritz

PROGRAM DEVELOPMENT FOR VAX/VMS USERS

Goals: To learn how to use program development tools in VMS (including the symbolic debugger, the Language Sensitive Editor, and the Performance Measurement and Evaluation package) and to apply these tools for developing your own programs.

Length of Class: Two 3-hour sessions

Dates and Times: October 26, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
October 31, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Instructor: Dave Lifka

NOTE: CTD will charge \$100 for this class, which will apply as a credit for any future use of central computing.

USING THE CRAY X-MP/14 FROM THE VAX/VMS STATION (RESCHEDULED)

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing, how to submit work and to manage Cray files from the VAX/VMS front-end station so that you can submit and manage Cray batch jobs, and how to use the Cray station for interactive Cray sessions.

Prerequisite: "Introduction to UNICOS" and "Introduction to UNICOS Shell Programming" classes or equivalent experience with Unix.

Length of Class: One 3-hour session

Date and Time: October 27, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Tom Canfield

WHAT'S NEW IN GRAPHICS SOFTWARE FROM CA

Goals: To learn about the new features of CA-Disspla, CA-Tellagraf, and CA-Cuechart and SuperImage availability for VAX computers.

Length of Seminar: 3 hours

Date and Time: November 7, 1989 (Tuesday), 8:30 a.m. to 11:30 a.m.

Location: Building 221, Room A-216

Instructor: Terry Hicks (Computer Associates) and Arthur Wood (Computer Associates)

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
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Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting



Table 2: RACF Subcommands To Update RACF-Protected Minidisk Profiles

FUNCTION	COMMANDS
To permit read access to users in your cost center	RACF PERMIT cmsuser.vaddr CLASS(VMDISK) ID(Cnnn) ACCESS(READ) END
To permit read access to Account Services and User Services	RACF PERMIT cmsuser.vaddr CLASS(VMDISK) ID(US) ACCESS(READ) END
To permit read access to all users	RACF RALTER VMDISK cmsuser.vaddr UACC(READ) END
To permit read access to selected users	RACF PERMIT cmsuser.vaddr CLASS(VMDISK) ID(racfuser1 racfuser2 ...) ACCESS(READ) END
To permit update (write) authority to selected users	RACF PERMIT cmsuser.vaddr CLASS(VMDISK) ID(racfuser1 racfuser2 ...) ACCESS(UPDATE) END
To deny access to selected users	RACF PERMIT cmsuser.vaddr CLASS(VMDISK) ID(racfuser1 racfuser2 ...) ACCESS(NONE) END
To remove selected users from the list	RACF PERMIT cmsuser.vaddr CLASS(VMDISK) ID(racfuser1 racfuser2 ...) DELETE END
To verify the access list on your own minidisk	RACF RLIST VMDISK cmsuser.vaddr AUTHUSER END
To verify your access authority on another user's minidisk	RACF RLIST VMDISK cmsuser1.vaddr END

where "cmsuser" refers to the name of your CMS virtual machine; "vaddr" is any assigned virtual address in your CMS virtual machine (for example, 191); "nnn" is your cost center (for example, 245); and "racfuser1," "racfuser2," etc. refer to the RACF userid of other CMS users. The RACF userid is Bnnnnn, even when CMS userids include an account alias suffix of the form Bnnnnna.



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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division
VOLUME 20 NUMBER 11 NOVEMBER 1989

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COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4822

FAX: 312-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

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Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
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Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
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Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
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Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
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The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

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COMPUTING COMMENTS

CARTRIDGE TAPE DRIVES HAVE ARRIVED

The StorageTek 4480 cartridge tape equipment has arrived. StorageTek manufactures cartridge tape systems with capabilities equivalent to IBM 3480 cartridge tape systems. In late September 1989, StorageTek installed the cartridge tape drives. CTD is in the process of conducting the acceptance test. Cartridge tapes are not yet available for general use. In future *Newsletters*, CTD will provide instructions for their use with Cray UNICOS, MVS batch, and CMS. When a DEC interface becomes available for the StorageTek cartridge tapes, CTD will evaluate it for a possible upgrade acquisition.

A competitive procurement allowed CTD to obtain a controller, eight tape drives, four automatic cartridge tape loaders, an expanded controller buffer, and a 4.5 million byte per second (MBps) channel connection capability in the initial installation.

The new cartridge tape equipment is more reliable and has improved data storage capacity compared to the reel-to-reel tape equipment. Automatic cartridge tape loaders on half of the drives will provide a significant improvement in scratch tape handling. The large data buffer in the tape controller and the 4.5 MBps channel connections will eventually provide significant throughput improvements to the Cray and the computer that replaces the IBM 3033 computers. The data transfer rate of the new drives is 3 MBps on the MVS and UNICOS systems as compared to 1 MBps for the reel-to-reel equipment. The new technology promises reduced tape media costs, tape storage requirements, and maintenance costs.

To make room for the new cartridge tape equipment, CTD removed one 1600/6250 bit per inch (bpi) and three 800/1600 bpi reel-to-reel tape drives. As the old equipment usage decreases, CTD will remove three additional 1600/6250 bpi drives.

CTD plans to use only longer cartridge tapes that increase the capacity of a cartridge about 10 percent. Difficulties may arise if this additional information is transferred to standard tapes that have a smaller capacity.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL PROGRAMMING IN STRAND CLASS

The Mathematics and Computer Science Division is offering a one-day class (9:00 a.m. to 3:00 p.m., on Monday, November 13, 1989) on parallel programming in Strand in the Argonne Advanced Computing Research Facility (ACRF) NeXT Laboratory (Building 203, Room C-110).

Strand is one of the first parallel programming tools to be available on a wide variety of parallel computers. This class will include Strand basic concepts and fundamental programming techniques and how to develop Strand portable parallel applications. Several in-depth case studies will be covered. In each case, a problem will be described, a parallel algorithm developed, and the implementation of the algorithm considered. The class will include hands-on exercises.

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. The class is limited to 20 people.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, December 6-8, 1989) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the TC2000 (Butterfly II), (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Knowledge of Unix and Fortran is strongly recommended. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or

through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a \$25.00 charge per person for universities, federal laboratories, and other government organizations and a \$100 charge for commercial organizations.

COMPUTER PROTECTION

LABORATORY TAKES PRECAUTIONS AGAINST COLUMBUS DAY VIRUS

To assess the threat to ANL of the Columbus Day MS-DOS virus, CTD obtained a copy of VIRUSCAN Version .07V40, purchased a license for 100 copies, and distributed 72 copies to personal computer virus fighting team members. CTD asked these individuals to scan their personal computer hard disks and floppy diskettes and to assist co-workers in doing the same thing. The VIRUSCAN program scans diskettes and hard disks for pre-existing virus infections. It will indicate the specific files or system areas that are infected and will identify the virus strain. The current version can identify 40 major virus strains. CTD will obtain updates for this software as they become available. If you do not have access to a copy of VIRUSCAN, CTD has a limited supply available at the Document Distribution Counter (Building 221, Room A-134).

The Columbus Day scare proved to be of no threat to ANL systems. CTD was notified of only one personal computer with the virus named "Jerusalem." Although personal computer users at ANL were not affected this time, users should continually practice prudent computing habits. Perform back-ups of hard disks and floppy diskettes regularly, isolate all new software packages from any systems until they are checked for viruses, and do not use software from unknown sources.

REMOTE MAINFRAME LOGINS REQUIRE GOOD SECURITY PRACTICES FOR LOCAL COMPUTER USERS AND MANAGERS

The capability for using remote logins (such as VAX/VMS proxy login, Unix .rhost, and NFS) to access computers from accounts on other computers has made the lives of computer users easier. Computer users no longer need to remember separate passwords for all the computers on which they have accounts. These methods enhance computer security by reducing the number of passwords transmitted in clear text through the networks but, at the same time, introduce other security risks, such as "spoofing." ("Spoofing" is the assumption of the identity of one computer by another, usually via the use of the IP number.)

Any data accessible by remote login is only as secure as data on the least secure computer in the chain. Remote logins will propagate any poor security practices from local computers to the mainframe. To ensure individual accountability on local systems, your system manager must take care in setting system parameters and in establishing secure practices to prevent access to your local system by unauthorized persons. You must also use good password practices to ensure individual accountability on your local computer. Any time that accountability on local systems is compromised and the local system users avail themselves of remote logins to mainframe computers, the mainframe accounts will also be compromised. Remember, all ANL and DOE computer security policies require users with computing accounts to maintain individual accountability; failure to do so (for example, by sharing login passwords with others) is considered a computer security incident and is reportable to Laboratory management.

When you elect to use the convenience of remote logins, be sure you and your local system manager adhere to good computer security practices.

CMS NEWS

RESTRUCTURING RACF FOR COST CENTER ADMINISTRATORS

In preparation for the RACF-protection of all CMS minidisks, CTD plans to restructure RACF administration to give the RACF administrator the ability to resolve difficulties with CMS minidisks and MVS datasets and tapes for users in the cost center group. This new design will enable each cost center to have more than one RACF administrator (which will provide continuity during vacations, travel, and other instances where one administrator may not be available). The RACF administrator will have more control and will be able to assist CMS and MVS users who are less familiar with RACF protection.

Previously, a RACF administrator was only able to:

- change logon passwords.
- revoke and resume logon privileges.

With restrictions, a RACF administrator with the RACF "group-SPECIAL" attribute will now be able to:

- change authorizations for access to CMS minidisks and MVS datasets.
- **CONNECT** users who are already defined to RACF to the group.
- **REMOVE** users from the group.

This restructuring of RACF authority requires sensitive applications to move to separate RACF groups. CTD has contacted users with sensitive data who must not permit access by anyone (including the RACF administrator) to arrange for a separate RACF group account that they alone will manage. If you own sensitive data in VM or MVS and have not been contacted, call Jean Troyer at extension 2-7440.

CRAY NEWS

CRAY IMPROVES TRIGONOMETRIC FUNCTIONS

CTD has replaced the single-precision SIN, COS, TAN, and COT routines with revised routines with the same names from Cray Research. Cray has revised these functions to correct inaccuracies. In the worst case, the results are accurate to 24 bits or approximately 6 or 7 decimal digits. However, the range of arguments that encountered the inaccuracy is very small, so the possibility that you will see differences with the revised routines is also small.

For additional details on the reasons for the revised routines, enter (in UNICOS):

`news trig_updates`

GRAPHICS NEWS

COMPUTER ASSOCIATES GRAPHICS PRODUCT SEMINAR RESCHEDULED

The Computer Associates product seminar originally set for Tuesday, November 7, 1989, has been rescheduled to Tuesday, November 14, 1989. (See "Computer Associates Hosts Graphics Product Seminar" in the October 1989 *Newsletter*.) The time and location (8:30 a.m. until 11:30 a.m., Building 221, Room A-216) remain the same. The purpose of the seminar is to learn about the new features of CA-Disspla, CA-Tellagraf, and CA-Cuechart and SuperImage availability for VAX computers.

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED MATERIALS MANAGEMENT SYSTEM USER COMMITTEE ORGANIZED

Recently, the Laboratory began a major new systems initiative to define the system requirements for a new Integrated Materials Management System (IMMS). The goal of IMMS is to provide a more integrated systems approach to the entire material and service procurement process. Specifically, IMMS will provide for requisitioning materials and services, processing purchase orders, receiving orders, inventory control, accounts payable, and property management. Ultimately, the new system should provide a method for simplifying requisitions and timely information to the requesters and the administrative users involved in the procurement process.

To define the requirements for the new system, an IMMS User Committee has been formed. The IMMS Project Manager is Jon Dudley (Support Services-Materials and Services). The IMMS User Committee consists of members from all major areas of the Laboratory (see Table 1).

The Committee encourages employees who are involved in the procurement process (especially those who track requisitions and purchase orders for their divisions) to contact their Committee member or the Project Manager (extension 2-7084) to express their requirements or concerns for the

new system.

In keeping with the Laboratory's administrative data processing strategy, the Committee will seek a system that is commercially available rather than develop one. The IMMS requirements are based on previously gathered information from administrative and programmatic organizations and reviews of the current systems and processes involved with the procurement of goods and services. A major goal of IMMS is to replace the functions performed by the Argonne Materials Order System (AMOS), the Automated Materials/Payables System (AMPS), the Property Management System, the Stock Tracker System (STS), and the Subcontract System with an integrated system. Each of the above formal systems were developed independently and operate on five different computers (including personal computers, the Hewlett-Packard minicomputers, and the IBM mainframes). Besides replacing the major procurement systems listed above, IMMS will need to provide the functions of such supplementary systems as the Materials CATalog (MCAT), STORECAT, STORES orders, and the Purchase Information and Retrieval System (PIRS).

In addition to completing the system requirements soon, the project goals for FY1990 include the issuance of a formal Request for Information (RFI) in December 1989 to gather more information from computer software vendors. Later this fiscal year, the User Committee will develop a Request for Proposal (RFP) to obtain software during FY1991.

Table 1: IMMS User Committee

Sam Agnello	Support Services-Materials and Services
Rod Ayers	Support Services-Materials and Services
Glade Barney	ANL-West
Duane Bradley	Plant Facilities and Services
Thomas Fair	representing Advanced Photon Source
Donald Grube	Biological and Medical Research
Mary Ellen Hennebry	Environmental Assessment and Information Sciences
Judith King	Reactor Analysis and Safety
Lawrence McCure	Office of the Chief Financial Officer
Dolores Muir	ANL-West
Kenneth Okolowitz	Plant Facilities and Services
James Parker	Support Services-Procurement
Beverly Quinn	Office of the Chief Financial Officer
Richard Slade	Computing and Telecommunications
James Specht	Physics
Dennis Tussing	Office of the Director

INTEGRATED FINANCIAL SYSTEM UPDATE

On Monday, October 9, 1989, Cost Accounting began distributing the critical financial reports to users. The Integrated Financial System (IFS) Project Team completed the fiscal year-end close on time. As planned, the "Cost Center Review" report was available to users on September 30, 1989.

In September 1989, the Project Team created five new reports for use in the fiscal year-end close process and for reporting purposes. They also created special reports for Laboratory divisions undergoing reorganization. With the Financial Reports Working Group (FRWG), the Project Team determined priorities for the remaining financial reports. There are currently 64 user reports available. Also in September 1989, Management Information Systems (MIS) developed and implemented programs to spread the variance for divisional overhead and to distribute the operating variances. MIS made the Materials and Services Tracking (MAST) interface to IFS available to Laboratory users and helped users bring their MAST databases up-to-date. MIS continues to update the IFS reporting database (as necessary) for user reporting. The Project Team added additional descriptor information to IFS and began preliminary work on the year-end purge process.

The Office of the Chief Financial Officer (OCF) has added new cost elements for union personnel and for employment and relocation travel for fiscal year 1990.

Progress on all phases of the IFS project will be reported at Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

BMDP EXTENDS STATISTICAL CAPABILITIES FOR SAS USERS IN MVS

Users of the Statistical Analysis System (SAS) in MVS can extend their range of capabilities by using the PROC BMDP procedure to access statistical programs from the Biomedical Computer Programs (BMDP) statistical software packages.

BMDP contains many capabilities that are not available with the basic SAS system. For example, BMDP has a program for the analysis of failure times for Survival Analysis (BMDP2L) that allows users to fit Proportional Hazards Models (PHM) and to incorporate time-dependent covariants.

BMDP also contains programs that may be easier to understand or to use than equivalent SAS capabilities. For example, users interested in the analysis of contingency tables by using loglinear models may prefer the BMDP4F program over the SAS CATMOD procedure. Likewise, the BMDP Principal Component Regression and Ridge Regression Programs (BMDP4R) and the Time Series Program (BMDP2T) represent capabilities not easily accomplished in SAS.

For complete documentation about BMDP capabilities, refer to Volume 1 and Volume 2 of the *BMDP Statistical Software Manual* (ISBN 0-520-06473-9), which CTD will order for users on request. BMDP is licensed in MVS with funds from the Biological and Medical Research Division, which relies on BMDP for its research. Users who are interested in discussing BMDP capabilities should contact Bruce Carnes (Biological and Medical Research) at extension 2-3824.

TELECOMMUNICATIONS NEWS

SIGNATURE FILE CAPABILITY NOW AVAILABLE FOR CMS NOTE USERS

Many electronic mail systems permit users to append user-defined text containing name, street address, etc. This user-defined text is often called a signature file. When CTD installed the IBM FAL code last spring, the IBM proprietary CMS NOTE header was replaced with the RFC-822 industry standard electronic mail header. The RFC-822 header does not contain any fields for the sender's street address or telephone number.

To enable CMS NOTE users to provide street address and other information, CTD has implemented a signature file concept. Each user may select either automatic or manual inclusion of their signature file into their mail notes. The signature file data is "free form" (that is, no specific information needs to be present).

To use signature files:

1. Add a new file to your minidisk called "Bnnnnn SIGN," which contains your electronic mail address, street address, telephone number, or any other information that you wish to enter into notes.
2. Change the defaults NOTE profile parameter to use the locally created profile (SMTPNOTE XEDIT) by entering (in CMS):

DEFAULTS SET NOTE PROFILE SMTPNOTE

The new profile does the following:

1. Calls the standard NOTE profile (PROFNOTE XEDIT) to set up the initial NOTE environment.
2. Prompts the user for a subject line.
3. Redefines a PFkey (PF6) to be the command "GET Bnnnnn SIGN." Label '6= **Signature**' appears on the screen.
4. Includes automatically the contents of the Bnnnnn SIGN signature file in your note, if you specify the (LONG option on the NOTE command.
5. Displays on the screen:
 - a. A new PFkey map.
 - b. A subject line following the list of recipients.
 - c. The contents of the Bnnnnn SIGN file when the (LONG option is specified.

NEXT PHASE OF TCP/IP CHANGES AT ANL

Phase II of the recent Argonne Transmission Control Protocol/Internet Protocol (TCP/IP) networking changes will begin in November 1989 (see "TCP/IP Addresses Change on October 17, 1989" in the October 1989 *Newsletter*). All host computers running the TCP/IP protocol whose IP number begins with 192.5.xxx.yyy will have to change their address to a subnet of Argonne's Class B address (130.202.aaa.bbb). This change will affect the Cray X-MP, the Advanced Computing Research Facility (ACRF) networks, the Environ-

mental Assessment and Information Sciences Division networks, and the Theoretical Chemistry Group network. CTD will make subnet assignments, contact administrators of affected networks, and arrange to have administrators change their addresses one network at a time. CTD will also provide new host tables as these changes occur. If you have any questions about these changes, contact the Computer Network Section at extension 2-7236.

VAX/VMS NEWS

CENTRAL VAX CLUSTER FUTURE DIRECTIONS

This article covers plans that CTD has for Argonne's central VAX 8700 computer and the VAX cluster in general. We expect future changes to be influenced by your need for services and resources. We invite your participation in guiding our efforts through discussions with us in the Consulting Office (Building 221, Room A-139), the Computer Users Group meetings on the first Tuesday of each month, and on other occasions.

CTD installed the VAX 8700 computer and the VAX cluster a little more than two years ago. We started with about two-and-a-half gigabytes of disk storage and shortly thereafter added about two gigabytes more. Recently, we traded in some older disk volumes and added others for a much needed increase to about 12.2 gigabytes. We implemented Version 5.1 of the VMS system, which includes DECWindows (DEC's implementation of X Window). Users with VAXStations can now create X Window client sessions on the VAX 8700 computer. We are also testing Apple Macintosh software that permits DECWindows sessions. Recently, we changed the operating environment to allow execution of programs up to 75 megabytes (up from 35 megabytes) and also doubled the permanent and temporary file storage quotas for most users. We have made the central VAX cluster a *mixed* cluster that allows VAXStations with and without local disks to be Ethernet-based members and to use all the VAX cluster disk and magnetic tape units directly.

With the user-sponsored acquisition of the AlisaTalk product, we have gained enhanced VAX queue access to PostScript printers on serial ports,

terminal servers, and AppleTalk networks bridged to the Laboratory-wide Ethernet. Printers with VAX cluster queues are accessible from all NJE network nodes as well. The VAX cluster is now a file server for Apple Macintosh computers providing capabilities and functions equivalent to local disks and permitting data sharing between users of different Apple Macintosh computers.

We expect to enhance the comprehensive networking and communication capabilities of the VAX 8700 computer by making it a MFEnet I or MFEnet II (ESnet) interactive host. We will move the VAX-to-Cray gateway station from the VAX 8250 computer to the VAX 8700 computer to provide a more complete working environment for Cray users. We expect to add Network File System (NFS) capability to the VAX 8700 Transmission Control Protocol/Internet Protocol (TCP/IP) networking software. We also are considering providing network file services for IBM personal computers and PC-compatibles to meet user needs.

The VAX 8700 computer will host the new computer-based publications/library information system currently being installed. The Technical Information Services (TIS) users will be able to access the new system from their existing VAX 8700 terminal sessions as well as from workstations based in the eight TIS libraries. Currently, the VAX 8700 computer has features for compatibility with Unix-style computing. Key elements include the C language and C run-time libraries, the TCP/IP network software and network programming tools, an Emacs editor with vi emulation, and the Unix shell command line interpreter. We are expecting to add or develop interfaces on the VAX 8700 computer to permit X Window client sessions served to TCP/IP-based workstations.

In the area of hardware enhancements, we are tracking the I/O requirements of both the system and users and plan to add disk capacity as needed and a storage controller for both redundancy and improved throughput. As needs emerge, we may add some new high-capacity magnetic tape systems (that is, 8mm videotape or IBM 3480 magnetic tape) for improved back-up efficiency and mountable medium availability for users. We will consider optical disk options to satisfy the special needs of certain applications. We expect to increase the physical memory from the current 32 megabytes; as the processing capacity becomes saturated, we will add a processor or change the current one for a faster unit. Because the processing capacity of the

VAX 8700 computer is near saturation during the prime hours and because of continuing usage growth and new applications, we have started to develop a plan for its upgrade. We would appreciate your input about future VAX processing needs.

IBM FULL SCREEN ACCESS FROM THE VAX 8700 COMPUTER

Users of the VAX 8700 computer can now connect to CMS, CICS, TSO, and Wylbur with tn3270. Tn3270 allows ASCII terminals to emulate an IBM 3278 full screen terminal. The ASCII terminal has the full capabilities of an IBM 3278 terminal. Most VAX 8700 computer users of tn3270 will be using a DEC VT100, VT200, or VT300 terminal or terminal emulator. Users who often use the VAX 8700 computer and occasionally must logon to one of the IBM systems may find it convenient to use tn3270.

At this time, users who access the VAX 8700 computer via DECnet with the **SET HOST** command cannot use tn3270. This restriction is a known bug of the tn3270 software, and the vendor expects to supply a fix in a future version. To use tn3270 at the present time, you must connect to the VAX 8700 computer via any DEC terminal server (the CTD DEC terminal server is available at extension 2-8700) or a telnet terminal server (the MCS/ACRF telnet terminal server is available at extension 2-5588). You may also use tn3270 if you are connected to the VAX 8700 computer via telnet.

To connect to one of the IBM systems, enter:

```
$ TN3270 ANLVM
```

This command will connect you to the VM/SP screen in CMS.

To connect to CMS, enter your badge number in the USERID field and your password in the PASSWORD field.

To connect to Wylbur, CICS, or TSO, tab down to the COMMAND field (see Table 2) and enter:

```
DIAL SNA
```

You will see the SNA screen and can enter "W" for Wylbur, "CICS" for CICS, or "T" for TSO. Login to the system the way you usually do.

Table 2 lists the IBM 3278 key functions and the corresponding keystrokes you must enter to perform those key functions with a VT100, VT200, or VT300 keyboard. These key definitions are keyboard-specific, and personal computers that emulate a VT-type terminal normally have a different keyboard with different keystrokes and missing keys. The middle column contains simpler keystroke sequences that are suitable for a VT100, VT200, or VT300 terminal or a terminal with a compatible keypad. The right column is suitable for any ASCII terminal insofar as it does not use any keypad keystrokes.

You may create your own key definitions file. To do so, you must re-define the MAP3270 logical name. To use your own key definitions file, enter:

```
$ DEFINE MAP3270 filespec
```

where "filespec" is the complete file specification

for your own key definitions file (including the device and directory names). To obtain a key definitions file to modify, copy

```
SYS_ANLDATA:MAP3270.DAT
```

to your directory. To use tn3270 with personal computer software that emulates a VT100-type, VT200-type, or VT300-type terminal but has a different keypad, modify the VT100 or VT200/VT300 key definitions in the MAP3270 file or use the keystrokes that correspond to the VT100/VT200/VT300 keystrokes in Table 2.

The tn3278 VT100 key definitions are different from those of the Hydra Protocol Converter VT100 definitions. If there is sufficient demand for a key definitions file to create the same keystrokes for the tn3270 as for the Hydra, CTD will create one. Interested users should contact the User Services consultants at extension 2-5405.

Table 2: TN3270 Key Definitions*

IBM 3278 FUNCTION	APPLICATION KEYPAD AND APPLICATION CURSOR KEYSTROKES FOR VT100, VT200, AND VT300 KEYBOARDS	ALTERNATE KEYSTROKES FOR ANY ASCII TERMINAL
FORWARD TAB	TAB	<CTRL>I
BACKWARD TAB	KEYPAD PF1 TAB	<CTRL>B
CURSOR UP	UP ARROW	<CTRL>U
CURSOR DOWN	DOWN ARROW	<CTRL>D
CURSOR RIGHT	RIGHT ARROW	<CTRL>R
CURSOR LEFT	LEFT ARROW	<CTRL>L
CURSOR HOME	KEYPAD PERIOD	<ESC>On
CLEAR	KEYPAD ENTER	<CTRL>Z
ERASE EOF	<CTRL>E	<CTRL>E
ERASE INPUT	<CTRL>W	<CTRL>W
DELETE CHARACTER	KEYPAD COMMA	<CTRL>X
INSERT MODE	<CTRL>#	<ESC>SPACE
RESET	<CTRL>G	<CTRL>G
ENTER	RETURN	RETURN
NEWLINE	LINEFEED	<CTRL>J
PF1	KEYPAD 1	<ESC>1
PF2	KEYPAD 2	<ESC>2
PF3	KEYPAD 3	<ESC>3
PF4	KEYPAD 4	<ESC>4
PF5	KEYPAD 5	<ESC>5
PF6	KEYPAD 6	<ESC>6
PF7	KEYPAD 7	<ESC>7
PF8	KEYPAD 8	<ESC>8
PF9	KEYPAD 9	<ESC>9
PF10	KEYPAD PF1 KEYPAD 0	<ESC>0
PF11	KEYPAD PF1 KEYPAD 1	<ESC>-
PF12	KEYPAD PF1 KEYPAD 2	<ESC>-
PF13	KEYPAD PF1 KEYPAD 3	<ESC><ESC>1
PF14	KEYPAD PF1 KEYPAD 4	<ESC><ESC>2
PF15	KEYPAD PF1 KEYPAD 5	<ESC><ESC>3
PF16	KEYPAD PF1 KEYPAD 6	<ESC><ESC>4
PF17	KEYPAD PF1 KEYPAD 7	<ESC><ESC>5
PF18	KEYPAD PF1 KEYPAD 8	<ESC><ESC>6
PF19	KEYPAD PF1 KEYPAD 9	<ESC><ESC>7
PF20	KEYPAD PF2 KEYPAD 0	<ESC><ESC>8
PF21	KEYPAD PF2 KEYPAD 1	<ESC><ESC>9
PF22	KEYPAD PF2 KEYPAD 2	<ESC><ESC>0
PF23	KEYPAD PF2 KEYPAD 3	<ESC><ESC>-
PF24	KEYPAD PF2 KEYPAD 4	<ESC><ESC>-
PA1	KEYPAD PF1 KEYPAD PF1	<CTRL>P 1
PA2	KEYPAD PF2 KEYPAD PF2	<CTRL>P 2
TN3270 SPECIFIC FUNCTIONS:		
ESCAPE TO tn3270	<CTRL>C	<CTRL>C

* You must enter the case of the keystroke sequences begun with the escape character (<ESC>) exactly as shown. You may enter the case of the keystroke sequences begun with the control character (<CTRL>) in either uppercase or lowercase. Enter escape keystroke sequences by pressing and releasing the escape key followed by the other keys in the keystroke sequence. Enter control keystroke sequences by simultaneously pressing the control key and the key following the <CTRL> in the keystroke sequence, releasing the keys, and pressing any remaining keys in the sequence.

BITS & BYTES

REPLACING OBSOLETE IBM 1403 IMPACT LINE PRINTERS

CTD plans to replace all IBM 1403 impact line printers with a faster model impact line printer. The cost to lease and maintain a new, faster line printer is about equal to the cost of maintaining the four IBM 1403 printers, so CTD is accomplishing this modernization of equipment within its operating budget. CTD will continue to provide the IBM 3800 laser printer. If there is a need for some other type of print service, CTD will consider providing it. Users with suggestions for local print services should contact the User Services consultants at extension 2-5405.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD OCTOBER 3, 1989

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:05 p.m.

Floors for FY1990. Mike Boxberger (Computing and Telecommunications) reported that the CTD budget has not been presented to the Management Council yet; therefore, the floors for FY1990 computing have not been established. Also under discussion is how the floors will be distributed among the Associate Laboratory Directors (ALDs).

The total CTD budget will be the starting point. CTD will remove from the floors the estimated costs of the Chief Financial Officer and Operations. Then, CTD will subtract the anticipated income from the Laboratory general benefit, external sources, CHM funds, and incidental effort sales. The remaining budget will be the basis of the floors calculation, with each ALD being assessed based on the percentage of the Laboratory indirect charges (one possibility). Each ALD will then provide CTD a breakdown on how to distribute the charges to their cost code centers. Once these values are known, the actual mechanism for implementation of floors can be developed.

It is anticipated that the charges will continue to be accrued on a monthly basis with no carry-over of credits (underspending of the floor) from month to month. The different possibilities on how to implement the charging are still under discussion.

CTD is also looking at the possibility of excluding certain charges from the floors. In all probability, bulk document sales and effort sales will not be accumulated as part of the floors. At this time, the issue of how to handle credits and refunds is also unclear.

CTD anticipates that the resolution of outstanding issues and implementation will be handled before the end of the month, so that the system will be in place for the October 1989 billing cycle.

Transmission Control Protocol/Internet Protocol (TCP/IP) Addresses Change. Fred Moszur (Computing and Telecommunications) reported on the need to change the way networks are handled at Argonne to simplify the routing to the Laboratory by moving toward the unified address structure of Internet and by increasing the number of possible computers attached to subnetworks. On October 17, 1989, all the CTD central computers will have their network addresses changed. Later, the Computer Network Section and the various network administrators will coordinate the other TCP/IP network and system changes.

This change will affect all IBM personal computers, Apple Macintoshes, and Suns on the 130.202 backbone network. Those who use domain names will feel less impact than those who use IP addresses. (See "TCP/IP Addresses Change on October 17, 1989" in the October 1989 *Newsletter*.)

Preparing for Area Code Change to 708. Chuck Zimmerman (Computing and Telecommunications) reported on the change in the telephone area codes to take place on November 11, 1989. On that date, Chicago will retain the 312 area code; the suburbs and outlying areas presently within area code 312 will change to area code 708 (including Argonne). On November 11, 1989, CTD will change the Private Branch Exchange (PBX) tables, but users who have speed dialing numbers and personal computers or modems with dialers will have to make their own changes. The callback system will not automatically assume a 312 area code any longer, so those in the new 312 area will need to

include the area code when they give their number. The 800 service remains the same. (See "Preparing for the 708 Area Code" in the October 1989 *Newsletter*.)

Restructuring of RACF Administration. Fred Moszur reported on the planned capability of the Resource Access Control Facility (RACF) administrators to issue the RACF **PERMIT** command for users in their cost center. To ensure access to necessary data when both the user and the administrator are absent, there may be more than one cost center administrator.

To assure the necessary levels of security, any sensitive applications should be moved into a separate RACF group. This change may require changes to the high-level index or setting up a separate minidisk. If this is not done, the RACF administrator will have control of the sensitive applications and access permissions.

There will be a class for administrators on the new features and how to provide security and access.

Access to AlisaPrint PostScript Printers from CTD Mainframe Computers. Fred Moszur discussed the network addresses for the new PostScript printers at Graphics Arts. CTD has changed the addresses for these printers to allow better queuing and the ability to rerun a job if the printing fails. For the new addresses, see "Graphic Arts Changes Address of Network Printers" in the October 1989 *Newsletter*. CTD can set up other queues for other printing devices around the Laboratory. Anyone sending output to these printers should let Graphics Arts know, so they can make sure the job prints correctly.

The meeting adjourned at 4:20 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD SEPTEMBER 14, 1989

Chairperson Bryan Schmidt (Environmental Assessment and Information Sciences) opened the meeting at 12:15 p.m.

Lee Wagar (Graphic Arts) passed out descriptions of the output devices currently available in Graphic Arts (GA), including instructions on how Apple Macintosh users could send PostScript files to the AlisaTalk software. The October 1989 *Newsletter* provides instructions for non-Macintosh users (see "Graphic Arts Changes Address of Network Printers").

Rich Nixon (Graphic Arts) mentioned that he submitted the 1990 GA budget to Accounting. If approved, there should be no major changes in rates. Also, GA plans to introduce more unit rates for items that involve design or photography. Finally, Joe Paulini (Graphic Arts) handed out copies of the first draft of the *Graphic Arts Users Guide*. Work will continue on the *Guide* as time allows; comments on the first draft are welcome until mid-October 1989.

Bryan asked whether GA could help users obtain an outside printer for small jobs (less than \$1,000). Rich replied that GA does not offer this service because it is more efficient for a user to locate a printer. This search could take a lot of time. GA would have to charge a user and would still not be able to guarantee the quality of the final printed document. Rich stated that if a job is to be done by an outside printer, the user must submit a "Purchase Requisition" (ANL-451) to Procurement (Building 201). Then Procurement will transmit a facsimile to Rich for his signature. This approval procedure usually takes less than an hour. If GA could make a competitive bid for the work, Rich would call the user.

The group held elections for officers for 1989. Mary Warren (Environmental Assessment and Information Sciences) is the new chairperson; Marita Moniger (Environmental Assessment and Information Sciences) remains the secretary.

For the show-and-tell segment, Bryan passed out some samples of maps produced by GA with Adobe Illustrator. Then Liz Stefanski (Advanced Photon Source) described the production of a marketing booklet, *Introduction to the Materials and Components Technology Division*. Since it was written by many members of the Materials and Components Technology Division staff, Liz gave each author a word limit, suggestions, and a sample of a similar, well-written document. All the text was put into one Microsoft Word file, and the figure captions were put in another Microsoft Word file. This package and the figures were given to GA designers, who put them into a PageMaker file for layout. Although the procedure worked well, Liz warned that careful proofreading is necessary, as some material got "lost" and the discretionary hyphens (even though they were not input until the document was in the PageMaker stage) sometimes appeared in the middle of lines rather than only at line breaks.

Also, Liz suggested paying special attention to the cover requirements. She had to abandon her initial plans for a four-color cover. In the final duo-tone version, many details in the original figure were lost. Liz was very pleased with the quality of the printing; the registration was excellent. Rich Nixon said that GA achieved this result because it has been able to exercise some quality control over documents by requiring the Government Printing Office to add the cost of a press inspection to the cost of printing when it takes bids on a job. With this arrangement, GA actually sends representatives to the site to view copies of the document as it is printing, and mistakes are corrected immediately. Therefore, out-of-state printers must make considerably lower bids to be competitive.

The next meeting will be held on Thursday, November 9, 1989, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD OCTOBER 18, 1989

Bob Kampwirth (Materials Science) opened the meeting at 11:00 a.m.

The tentative schedule for future meetings is:

November 1989
December 1989
January 1990
February 1990
In the Future

Claris--MacWrite II, SmartForm, CAD
Apple--System 7.0, Macintosh portable demonstration
Ashton-Tate--Full Impact 2.0, Full Write
Alan Krauss (Chemistry)--comparison of Wingz and Excel
Apple--Vellum CAD, new CD ROM of NCSA images from Cray, X Windows under the Macintosh Operating System

The need for onsite classes on Apple Macintosh software (possibly run by CTD) was discussed. Anyone interested should call Fred Moszur at extension 2-7419.

Jeff Morgan (Sales Representative, Innovative Data Design, Inc.) presented a demonstration of the object-oriented PostScript Computer-Aided Design (CAD) program, Dreams 1.0 (a superset of MacDraft). It features (1) four floating menus plus pop-up menus, (2) English or metric scales, (3) independently scaled layering, (4) rotations in seconds of arc, and (5) keyboard and mouse editing. It has (1) associative dimensioning (between any two points), (2) area calculation (of an object), (3) composite objects (an object, not a group, made up of many other objects), and (4) moveable dimension notation. The maximum page size is 8-by-9 feet.

The program uses fixed-point mathematics and displays data to four decimal places (stored to six decimal places internally). Some of the drawing tools include Bezier curves, parallel lines, automatic fillet, automatic line extension to intersection, editable dashed lines, and line trim. It uses its own custom clipboard (not the Apple Macintosh System clipboard) for transferring PostScript files. It can use the system scrapbook for transferring PICT and PICT2 files.

The intended niche is architectural drawing, precision drafting, and technical illustration. Dreams provides full Apple Macintosh color and requires (1) Apple Macintosh Plus or higher, (2) one megabyte random-access memory (RAM), (3) a hard disk (860K), and (4) System 6.0.2 or higher. Until December 31, 1989, there will be a special sales offer for Argonne: the \$500 program can be purchased for \$200. Bob Kampwirth has a demonstration copy of Dreams.

Terry Hicks (Product Manager for End User Graphics) and Gina Lowe (Federal Account Manager) from Computer Associates International, Inc., discussed SuperImage, CA-Tellagraf, CA-Disspla and Computer Associate's recent acquisition of Cricket (the source of the Apple Macintosh products Cricket Graph, Cricket Presents, Cricket Draw, and others). Computer Associates intends to establish CGM (Computer Graphics Metafile) as

the standard to move files among its various micro-computer and mainframe products.

A brief demonstration of a beta copy of CA-Cricket Stylist (the replacement for Cricket Draw) was given. It provides a PostScript-based, object-oriented drawing environment. An upgrade of CA-Cricket Presents was discussed; it will include subscript and superscript capabilities.

To the dismay of some of the Apple Macintosh users, Computer Associates intends to expend effort breaking into the workstation (for example, Sun and Apollo) market rather than investing resources in upgrading its new Apple Macintosh software. For example, Computer Associates will replace the 3-D and data analysis represented by Disspla's Fortran-callable functions with an object-oriented system written for the Sun. Also, only the original seven former Cricket Graph project members will be working on the new version of CA-Cricket Graph (due in Spring 1990).

A demonstration and discussion of SuperImage, Disspla, and Tellagraf is scheduled for Tuesday, November 7, 1989, in Building 221, Room A-216. (Since this meeting, this demonstration and discussion has been rescheduled to Tuesday, November 14, 1989. See "Computer Associates Graphics Product Seminar Rescheduled" in this *Newsletter*.) For details, call Mike Thommes at extension 2-5461.

The Apple Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:30 p.m.

Lee Wagar, Acting Macintosh Users Group Secretary

WORKLOAD STATISTICS (AUGUST 31 THROUGH SEPTEMBER 30, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,264	1,253	482
Wylbur	1,657	1,653	387
MVS TSO	54	54	8
CICS	1,657	1,653	97
MVS Batch	2,111	2,109	639
VAX/VMS	438	442	233
Cray	419	423	132
All Systems	2,111	2,109	938

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	12,281	2,444	1,760	16,485	36,422.3	102.73
Wylbur	7,055	378	531	7,964	7,121.8	9.91
MVS TSO	62	0	1	63	45.6	0.13
CICS	46	42	22	110	0.0	4.10
VAX/VMS	6,880	649	594	8,123	11,169.3	148.48
Cray	141	175	51	367	1,686.6	51.49
IBM BATCH						
Class U	8,408	1,952	1,292	11,652	n.a.	49.36
Class W	15,731	1,570	1,362	18,663	n.a.	148.17
Class X	44	1,637	65	1,746	n.a.	102.70
Class Y	0	0	597	597	n.a.	29.97
Nonmain	17,208	2,049	1,854	21,111	n.a.	0.00
Total	41,391	7,208	5,170	53,769	n.a.	330.20
CRAY BATCH						
u	141	175	51	367	n.a.	51.49
w	2,434	344	245	3,023	n.a.	84.09
x	912	133	88	1,133	n.a.	111.42
y	3,760	857	944	5,561	n.a.	295.06
Total	7,247	1,509	1,328	10,084	n.a.	542.06
VMS BATCH						
W BATCH	2,079	1,177	1,167	4,423	n.a.	31.03
X BATCH	8	32	8	48	n.a.	38.64
Y BATCH	0	11	9	20	n.a.	21.15
Total	2,087	1,220	1,184	4,491	n.a.	90.82

INPUT/OUTPUT

Lines Printed	
Local	74,007,814
Remote	45,403,648
Fiche	30,555,989
Cards Punched-Local Only	16,578
Tape Mounts	7,882
Microfiche Developed	4,025
Microfiche Frames Developed	670,728

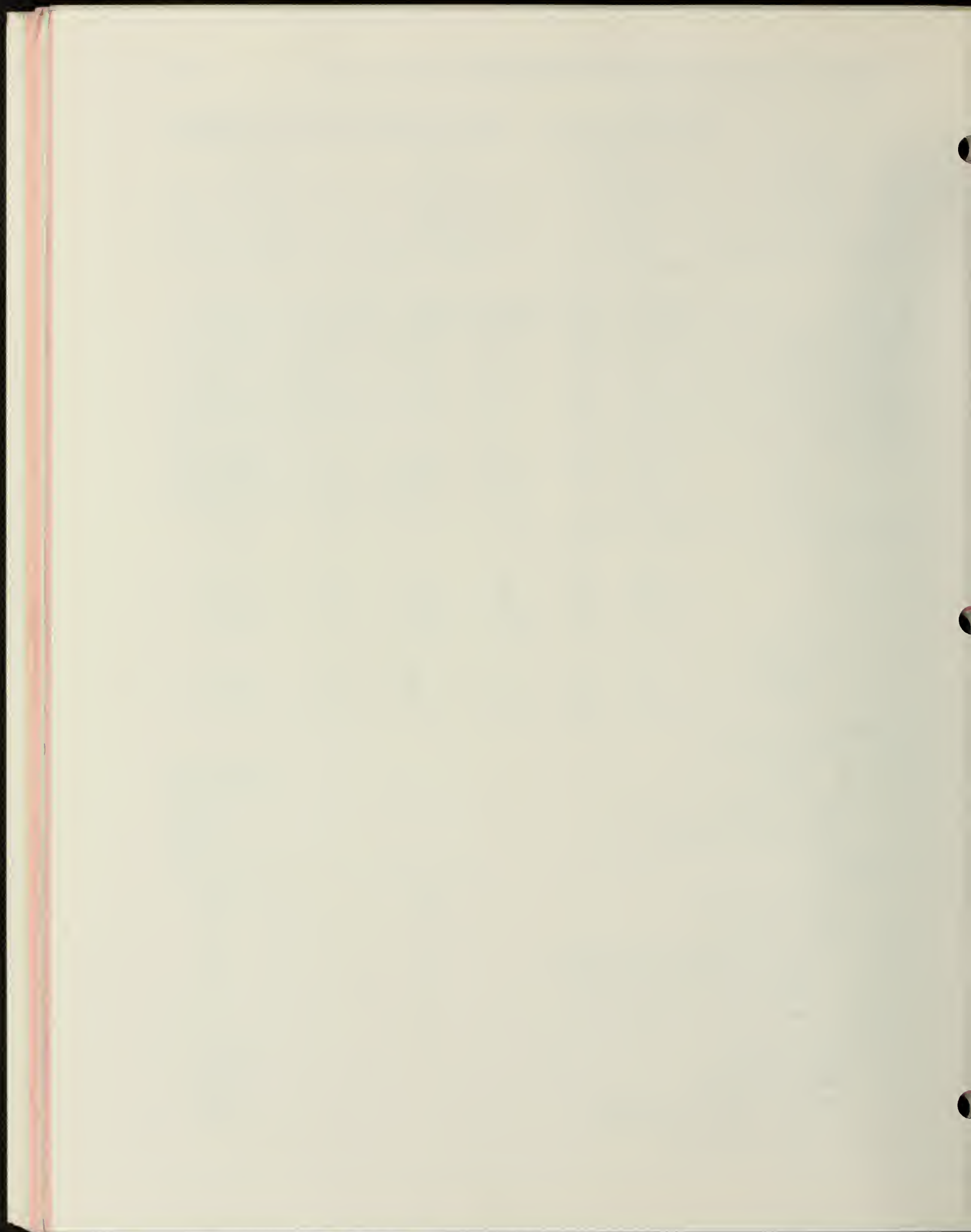
GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	39	n.a.
Matrix 35mm Color	188	545
Matrix-8 x 10	78	78
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	25	231
35mm Black/White/Sprocketed	5	71
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	23,687
New Tapes Saved	1,164
Tapes Released	1,348
Datasets Exported to Tape	3,069
Datasets Imported from Tape	663

* n.a. = not applicable



AVAILABILITY STATISTICS, BY MACHINE (AUGUST 31 THROUGH SEPTEMBER 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	15.00	1.00	7.00		4.00	2.00	1.00
Hrs Unavailable	23.91	1.40	6.78		13.55	0.98	1.20
MTF/Unscheduled	99.44				174.02	348.04	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00	1.00	7.00		1.00		1.00
Hrs Unavailable	10.23	1.40	6.78		0.85		1.20
MTF/Unscheduled	126.88				253.76		
RED IBM 3033							
All Shifts							
Interruptions	5.00	1.00	3.00				1.00
Hrs Unavailable	6.46	1.83	2.80				1.83
MTF/Unscheduled	713.53						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00	1.00	3.00				1.00
Hrs Unavailable	6.46	1.83	2.80				1.83
MTF/Unscheduled	257.53						

AVAILABILITY STATISTICS, BY SERVICE (AUGUST 31 THROUGH SEPTEMBER 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	5.00	1.00	3.00				1.00
Hrs Unavailable	6.46	1.83	2.80				1.83
MTF/Unscheduled	713.53						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00	1.00	3.00				1.00
Hrs Unavailable	6.46	1.83	2.80				1.83
MTF/Unscheduled	257.53						
MYLBUR							
All Shifts							
Interruptions	15.00	1.00	7.00		4.00	2.00	1.00
Hrs Unavailable	25.13	1.60	7.25		13.26	1.18	1.83
MTF/Unscheduled	99.26				173.71	347.43	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00	1.00	7.00		1.00		1.00
Hrs Unavailable	11.53	1.60	7.25		0.85		1.83
MTF/Unscheduled	126.23				252.46		
MVS TSO							
All Shifts							
Interruptions	15.00	1.00	7.00		4.00	2.00	1.00
Hrs Unavailable	25.13	1.60	7.25		13.26	1.18	1.83
MTF/Unscheduled	99.26				173.71	347.43	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00	1.00	7.00		1.00		1.00
Hrs Unavailable	11.53	1.60	7.25		0.85		1.83
MTF/Unscheduled	126.23				252.46		
JES3							
All Shifts							
Interruptions	20.00	1.00	7.00		9.00	2.00	1.00
Hrs Unavailable	25.21	1.56	7.00		14.26	1.18	1.20
MTF/Unscheduled	57.89				77.19	347.39	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15.00	1.00	7.00		6.00		1.00
Hrs Unavailable	11.25	1.56	7.00		1.48		1.20
MTF/Unscheduled	36.10				42.12		
CICS							
All Shifts							
Interruptions	1.00					1.00	
Hrs Unavailable	6.75					6.75	
MTF/Unscheduled	713.25					713.25	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00					1.00	
Hrs Unavailable	6.75					6.75	
MTF/Unscheduled	257.25					257.25	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	7.00	1.00	2.00		3.00		1.00
Hrs Unavailable	10.38	1.08	2.00		6.71		0.58
MTF/Unscheduled	177.40				236.53		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6.00	1.00	2.00		2.00		1.00
Hrs Unavailable	9.73	1.08	2.00		6.06		0.58
MTF/Unscheduled	84.75				127.13		
CRAY							
All Shifts							
Interruptions	11.00	8.00	1.00			1.00	1.00
Hrs Unavailable	21.26	18.33	0.85			0.25	1.83
MTF/Unscheduled	349.36					698.73	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00		1.00				1.00
Hrs Unavailable	2.68		0.85				1.83
MTF/Unscheduled	261.31						

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (AUGUST 31 THROUGH SEPTEMBER 30, 1989)

CC	CNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	\$1,437	\$101	\$0	\$627	\$2,165
272	ADVANCED PHOTON SOURCE	\$34	\$0	\$0	\$10	\$44
341	ACCELERATOR PHYSICS	\$0	\$0	\$0	\$0	\$0
345	VACUUM	\$0	\$848	\$0	\$1,063	\$1,911
349	POWER SUPPLIES	\$30	\$0	\$0	\$0	\$30
350	DIVISION MANAGEMENT	\$8	\$0	\$0	\$0	\$8
361	PROJECT DIRECTION	\$13	\$0	\$0	\$0	\$13
362	MANAGEMENT GENERAL	\$17	\$0	\$0	\$0	\$17
SUBTOTAL		\$1,540	\$951	\$0	\$1,700	\$4,192
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO, ENVIR, & MED RES DIV	\$2,422	\$2,026	\$271	\$-5,939	\$-1,219
149	BEW DIV-CTR FOR ENVIR RES	\$1,746	\$182	\$35	\$1,079	\$3,042
174	ENER/ENV/BIO RES PROG DIR	\$120	\$0	\$0	\$25	\$146
190	ENERGY & ENVIR SYST DIV	\$9,677	\$10,135	\$508	\$5,569	\$25,890
197	OFF OF INTER ENERGY DEV PROGS	\$475	\$18	\$0	\$103	\$597
246	TIS - NATL ENERGY SOFTWARE CT	\$272	\$0	\$0	\$969	\$1,241
274	ENER/ENV/BIO RES PROG ADM	\$117	\$0	\$0	\$84	\$202
SUBTOTAL		\$14,831	\$12,362	\$815	\$1,891	\$29,898
ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	\$2,339	\$23	\$432	\$423	\$3,218
104	EBR-II PROJECT-ILLINOIS	\$3,883	\$52	\$378	\$1,000	\$5,314
107	CHEMICAL TECHNOLOGY DIVISION	\$1,163	\$66	\$0	\$1,605	\$2,834
112	REACTOR ANAL & SAFETY	\$17,987	\$524	\$3,128	\$6,235	\$27,874
114	MATLS & COMP TECH DIV	\$6,689	\$2,203	\$201	\$3,667	\$12,759
115	ENGINEERING DIV - ILL	\$1,158	\$2,603	\$103	\$-1,145	\$2,719
116	APPLIED PHYSICS-ILLINOIS	\$31,577	\$1,611	\$26,101	\$10,010	\$69,369
117	APPLIED PHYSICS-ANL WEST	\$2,710	\$12	\$4,969	\$614	\$8,305
118	REACTOR EXP & EXAM DIV	\$4,737	\$404	\$83	\$304	\$5,528
119	ANALYTICAL LABORATORY ANL-WES	\$0	\$0	\$0	\$36	\$36
171	ENGRG RES PROG DIR	\$4	\$0	\$0	\$86	\$90
178	FUSION POWER PROGRAM	\$245	\$18	\$0	\$500	\$763
211	ENG DIV-DESIGN ENG DEPT	\$51	\$0	\$0	\$2,665	\$2,716
269	CHEM TECH DIV-ANALYTICAL CHEM	\$71	\$0	\$0	\$40	\$111
271	ENGRG RES PROG ADMIN	\$278	\$0	\$0	\$194	\$472
SUBTOTAL		\$72,891	\$7,587	\$35,395	\$26,234	\$142,106
PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	\$2,636	\$3,161	\$3,931	\$1,979	\$11,706
109	PHYSICS DIV	\$2,478	\$762	\$180	\$1,637	\$5,057
120	CHEMISTRY DIV	\$1,386	\$2,198	\$678	\$1,883	\$6,145
136	INT PULSED NEUT SOURCE PROG	\$231	\$782	\$16	\$468	\$1,496
137	HIGH ENERGY PHYSICS DIV	\$603	\$2,302	\$8,299	\$1,258	\$12,462
139	DIV OF EDUCATIONAL PROGRAMS	\$941	\$0	\$0	\$1,493	\$2,434
145	MATHEMATICS & COMPUTER SCI DI	\$148	\$18	\$1,053	\$8,015	\$9,235
146	SCIENTIFIC APPLICATIONS RESEAR	\$256	\$1,741	\$16,255	\$98	\$18,350
245	COMPUTING & TELECOMMUNICATION	\$12,449	\$0	\$0	\$5,281	\$17,730
247	CTD - COMMUNICATIONS SERVICES	\$1,847	\$0	\$0	\$1,328	\$3,175
273	PHYSICAL RESEARCH PROGRAM ADM	\$88	\$0	\$0	\$46	\$134
SUBTOTAL		\$23,062	\$10,964	\$30,411	\$23,486	\$87,924
EXTERNAL						
750	ACK WORK PROJECTS	\$246	\$8	\$148	\$-135	\$267
751	FERMI NATIONAL LABORATORY	\$856	\$0	\$0	\$865	\$1,720
752	NAVY	\$11,258	\$0	\$0	\$6,332	\$17,591
753	MORGANTOWN ENERGY TECH CENTER	\$17	\$0	\$0	\$650	\$667
754	DEPARTMENT OF ENERGY AT ANL	\$35	\$0	\$0	\$5	\$40
757	ACK WORK PROJECTS	\$324	\$0	\$0	\$663	\$987
760	ABBOTT LABORATORIES	\$13	\$398	\$3,570	\$21	\$4,012
762	STATE UNIVERSITY OF NEW YORK	\$148	\$135	\$2,763	\$0	\$3,271
763	GENERAL ELECTRIC COMPANY	\$0	\$0	\$0	\$0	\$0
766	BECHTEL NATIONAL, INC	\$16	\$559	\$1,303	\$60	\$1,937
767	NUMERICAL ALGORITHMS GROUP, I	\$0	\$0	\$0	\$0	\$0
SUBTOTAL		\$12,913	\$1,098	\$7,784	\$8,698	\$30,493
OPERATIONS						
143	SUPP SERV DIV - ELEC DEPT	\$112	\$18	\$0	\$613	\$744
148	HUMAN RESOURCES-HEALTH DEPT	\$1,265	\$0	\$0	\$387	\$1,652
150	PLANT FAC & SERV - SPEC MATLS	\$211	\$0	\$0	\$184	\$395
161	TECH INFO SERVICES DEPT	\$1,243	\$5	\$0	\$812	\$2,060
201	OFFICE OF THE DIRECTOR	\$448	\$0	\$0	\$437	\$885
202	OFC OF CHIEF OPER OFCR	\$39	\$0	\$0	\$144	\$182
210	SUPP SERV DIV - CENT SHOPS	\$154	\$0	\$0	\$111	\$265
216	SUPPORT SERVICES DIVISION	\$118	\$0	\$0	\$61	\$179
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$36	\$36
232	PLANT FAC & SERV-SECURITY	\$331	\$0	\$0	\$113	\$444
234	SUPP SERV DIV-OHS-HEALTH PHY	\$238	\$0	\$0	\$88	\$326
235	SUPP SERV DIV-ENV SAFE HEALTH	\$1,098	\$0	\$0	\$332	\$1,430
237	PLANT FAC & SERV-FIRE DEPT	\$0	\$0	\$0	\$36	\$36
260	SUPP SERV DIV-GRAPHIC ARTS	\$255	\$33	\$0	\$1,003	\$1,292
275	OFFICE OF PUBLIC AFFAIRS	\$576	\$0	\$0	\$84	\$660
276	OFC PUB AF - MOTN PIC UNIT	\$32	\$0	\$0	\$35	\$67
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$285	\$285
315	SUPP SERV DIV-MATLS & SERV	\$3,459	\$0	\$0	\$682	\$4,141
316	PLANT FAC & SERV-VEH MAINT	\$1	\$0	\$0	\$95	\$95
317	PLANT FAC & SERV-DRIV&RIG SER	\$13	\$0	\$0	\$36	\$49
319	SUPP SERV DIV-TRAVEL OFC	\$301	\$0	\$0	\$36	\$337
322	SUPP SERV DIV-PROCUREMENT	\$42	\$0	\$0	\$58	\$100
333	QA, ENVIR & SAFETY OFC	\$64	\$0	\$0	\$98	\$162
400	OFC OF CHIEF FIN OFFICER	\$64,101	\$0	\$0	\$13,788	\$77,889
401	ACCOUNTING	\$1	\$0	\$0	\$36	\$37
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$13	\$0	\$0	\$125	\$138
403	BUDGET OFFICE	\$0	\$0	\$0	\$36	\$36
410	HUMAN RESOURCES DEPARTMENT	\$10,021	\$0	\$0	\$1,589	\$11,610
412	AFFIRM ACTION PROGRAM	\$103	\$0	\$0	\$161	\$264
501	PLANT FAC & SERV-BLDG MAINT	\$36	\$0	\$0	\$106	\$141
502	PLANT FAC & SERV-INSTALLATION	\$0	\$0	\$0	\$36	\$36
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$36	\$36
504	PLANT FAC & SERV-CUSTODIAL	\$0	\$0	\$0	\$36	\$36
505	PLANT FAC & SERV-WASTE MGMT O	\$66	\$0	\$0	\$71	\$137
506	PLANT FAC & SERV-PLANT MGR OF	\$223	\$0	\$0	\$107	\$330
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$37	\$37
512	PLANT FAC & SERV-FAC PLNG/ENG	\$528	\$0	\$0	\$131	\$660
530	SITE MGRS OFC-ANL WEST	\$36	\$0	\$0	\$37	\$73
531	PERSONNEL-ANL WEST	\$11	\$0	\$0	\$36	\$147
532	SPECIAL MATLS-ANL WEST	\$1,011	\$0	\$0	\$248	\$1,258
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$36	\$36
534	PURCHASING-ANL WEST	\$13	\$0	\$0	\$36	\$49
535	SECURITY - ANL WEST	\$21	\$0	\$0	\$36	\$57
536	SAFETY STAFF-ANL WEST	\$302	\$0	\$0	\$41	\$343
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$36	\$36
538	MATLS HANDLING-ANL WEST	\$124	\$0	\$0	\$36	\$160
550	COMPUTER APPL & SERV - ANL-W	\$112	\$0	\$0	\$37	\$149
551	RAD MONITORING-ANL WEST	\$8	\$0	\$0	\$36	\$44
554	MACHINE SHOP-ANL WEST	\$37	\$0	\$0	\$36	\$73
556	SITE ENGRG-ANL WEST	\$104	\$361	\$0	\$117	\$583
557	PLANT SERVICES-AW-SERVICE REQ	\$84	\$0	\$0	\$58	\$142
558	PLANT SERVICES-AW-FUNCTION	\$4	\$0	\$0	\$0	\$4
559	FOOD SERVICES - ANL WEST	\$0	\$0	\$0	\$36	\$36
561	OFC OF QUALITY ASSURANCE - AW	\$4	\$0	\$0	\$37	\$41
563	TALENT RESOURCE POOL-ANL WEST	\$0	\$0	\$0	\$36	\$36
SUBTOTAL		\$87,063	\$419	\$0	\$22,962	\$110,443
TOTAL		\$212,300	\$33,380	\$74,405	\$84,972	\$405,057

COMPUTING CENTER TELEPHONE NUMBERS

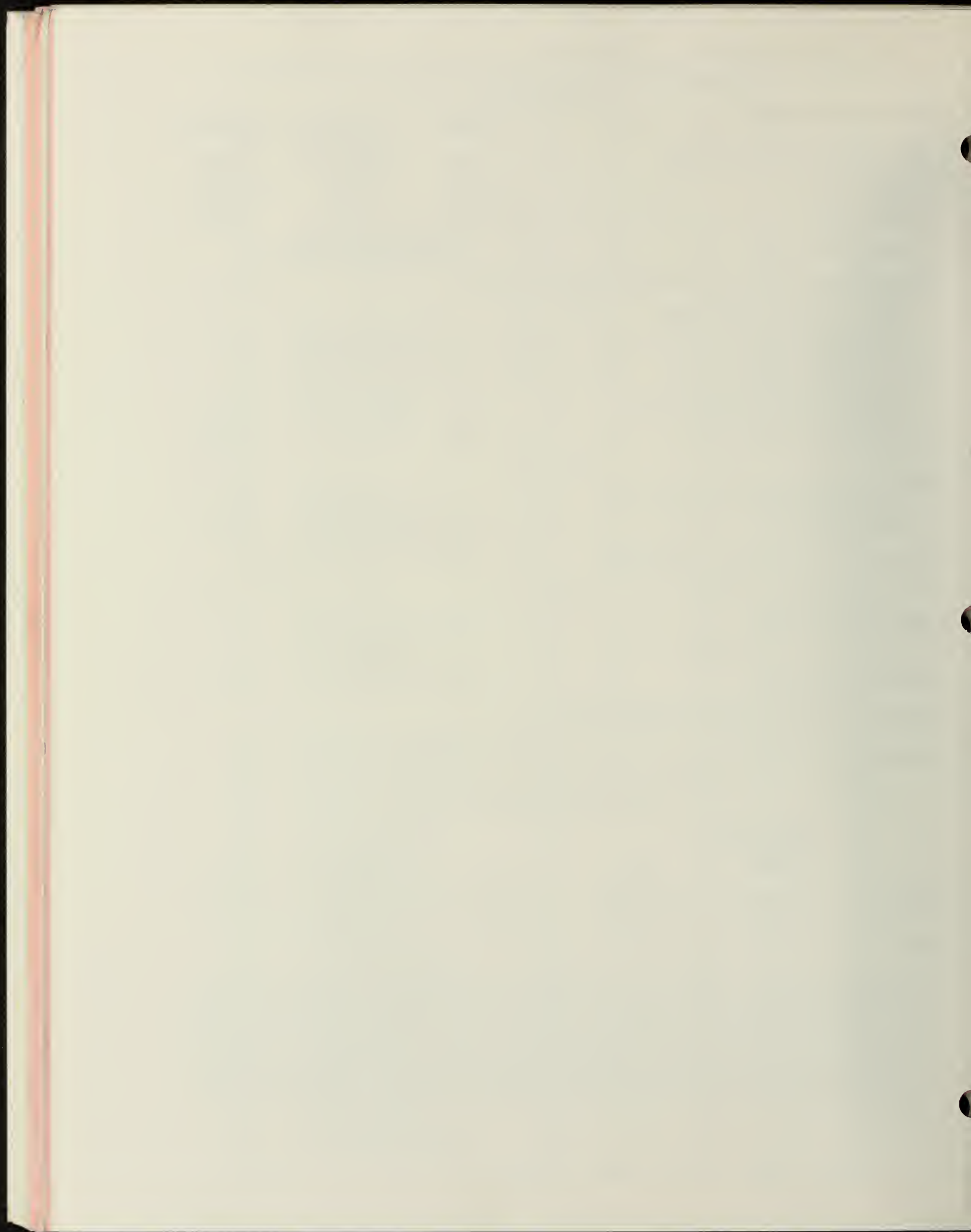
Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-07:00** 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.



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COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
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Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting



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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division
DEPOSITORY

VOLUME 20

NUMBER 12

DEC 21 1989

DECEMBER 1989

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

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Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4822

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertocini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien Hale	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischer	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

INCREASED AVAILABILITY OF CENTRAL COMPUTERS

Beginning on Friday, December 1, 1989, Argonne's central Cray, VAX, and IBM computers will generally be available each morning beginning at 7:00 a.m. Central Time without interruption. Previously, the Computing and Telecommunications Division (CTD) staff and hardware maintenance contractors used the period between 7:00 a.m. to 8:30 a.m. to perform routine maintenance on the software and hardware of the central computer systems. This situation prevented users from accessing the central computers before 8:30 a.m.

Increasing the availability of the central computers is a response to user requests. Scientific users have often commented on the desirability of earlier availability of central services. Similarly, many administrative users and Materials CATalog (MCAT) vendors have requested access to Argonne's central computers before 7:30 a.m. Expanded availability will increase the productivity of scientific and administrative users.

Because of contract limitations, portions of the Cray hardware maintenance must still take place between 7:00 a.m. and 8:00 a.m. As a compromise, CTD is rescheduling the Cray hardware maintenance to take place between 4:00 a.m. and 8:00 a.m. on Monday mornings instead of between 6:00 a.m. and 8:00 a.m. on Tuesday and Thursday mornings. To determine when services will be unavailable, see the "Computing Center Service Schedule" at the back of the *Newsletter*.

This increase in the availability of Argonne's central computers is one step in an overall goal to increase the value of central computing services. CTD encourages users to make suggestions to improve available services to the User Services consultants at extension 2-5405 or at electronic mail address CONSULT AT ANLVM.

COMPUTING RATES FOR OUTSIDE USERS DECREASE

Effective October 1, 1989, outside users who are funded by DOE but not by ANL will pay Laboratory indirect rates that bring their total computing costs to 124.66 percent of their computing bill.

Outside users who are funded neither by DOE nor by ANL will pay additional costs (including depreciation and DOE overhead) that bring their total computing costs to 156.63 percent of their computing bill.

Outside users of the Cray will incur the 124.66 percent rate whether or not DOE funds them, because for FY1990 DOE has waived overhead charges for outside Cray use.

CHRISTMAS THROUGH NEW YEAR'S HOLIDAY AND LABORATORY CLOSING SERVICE SCHEDULE

All the central computing systems will operate throughout the 11-day period from Friday, December 22, 1989, through Monday, January 1, 1990. At least one computer operator will be available throughout the period. Because of the limited availability of computer operators, weekend and holiday computer rates will prevail throughout the period beginning at 12:01 a.m. on Friday, December 22, 1989, until 7:00 a.m. on Tuesday, January 2, 1990.

Users who have special requirements for service during this period should call the Computer Operations Manager at extension 2-5437.

COMPUTING CLASSES SCHEDULED FOR JANUARY 1990

During January 1990, CTD will offer six classes and one demonstration. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, and Cray UNICOS and of computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (one 1-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Programming in VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

Using CMS on IBM 3270-Compatible Display Terminals (one 3-hour session) is for CMS users on an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

Introduction to UNICOS (two 3-hour sessions) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system, space management, and shell programming and how to submit jobs and to manage Cray files from the IBM MVS and VAX/VMS front-end stations.

COMPUTER PROTECTION

SPECIAL RACF COMMANDS FOR COST CENTER RACF ADMINISTRATORS

As of Monday, December 4, 1989, CTD has restructured RACF administration to enable divisions to have more than one RACF administrator and to give administrators new capabilities. To administer cost center groups effectively, cost center Resource Access Control Facility (RACF) administrators:

- Can control logon privileges for CMS, CICS, Wylbur, and TSO and access permissions to MVS datasets, VM minidisks, and tapes.
- Have authority to "extend" their group (that is, connect users from outside the group to their own group to access RACF-protected resources).
- May create subgroups as a convenient way of controlling access to RACF resources instead of authorizing lengthy lists of userids or issuing

many separate RACF commands. Subgroups are especially convenient when there are many RACF profiles for datasets or minidisks and when new users frequently need to be authorized.

- Can invoke RACF commands for users in their

cost center and have commands that only they can issue.

Table 1 lists the common commands that RACF administrators may issue from the CMS **RACF** command, the Wylbur exec **DO RACFCOMM**, or the TSO **RACF** command.

Table 1: RACF Commands for Cost Center RACF Administrators

FUNCTION	RACF COMMAND
Give user a new expired password	ALTUSER Bnnnnn PASSWORD(xxxxxxx) <i>xxxxxxx is a one-time-only password and must be changed immediately</i>
Suspend logon privileges	ALTUSER Bnnnnn REVOKE
Resume revoked logon privileges	ALTUSER Bnnnnn RESUME
Create an alternate RACF administrator	CONNECT Bnnnnn GROUP(group-name) SPECIAL
Remove an alternate RACF administrator	CONNECT Bnnnnn GROUP(group-name) NOSPECIAL
Add a user to your group	CONNECT Bnnnnn GROUP(group-name) AUTHORITY(USE)
Remove a user from your group	REMOVE Bnnnnn GROUP(group-name)
Create a group	ADDGROUP group-name OWNER(id)
Delete a group	DELGROUP group-name
Verify users in a group	LISTGRP group-name
View a user's RACF profile	LISTUSER Bnnnnn
where "group-name" is the cost center group Cnnn or other defined group and "id" is a specific userid or group. For more information, see <i>Resource Access Control Facility (RACF) Command Language Reference</i> (SC28-0733-9).	

CMS NEWS

RACFREAD EXEC ALLOWS READ ACCESS TO CMS MINIDISKS

On Monday, January 8, 1990, CTD will protect with RACF any user minidisk not protected (see "Update on Plan to RACF-Protect All CMS Minidisks" in the October 1989 *Newsletter*). CTD has provided the RACFREAD exec in CMS so that you

can easily authorize other CMS users to read your RACF-protected minidisk. The default RACF-protection of minidisks on January 8, 1990 (for those minidisks not already converted to RACF) will allow neither read nor write access by any user except the owner.

To define your CMS minidisk to RACF before January 8, 1990 (so that you can use the **RACFREAD** command), enter:

RACSERVE RDEFINE cmsuser.vaddr

where "cmsuser" is your CMS userid and "vaddr" is the virtual address of the minidisk you want to RACF-protect.

To allow various groups of CMS users to have read access to your minidisk, enter:

RACFREAD vaddr userlist

where "vaddr" is the virtual address of the minidisk you want to protect (if omitted, virtual address 191 is used) and "userlist" is the list of userids and/or RACF-defined groups that you want to give read access.

To give all CMS users read access to your 191 minidisk (just as it was before the January 8, 1990, cutover), enter:

RACFREAD ALL

To give user B98765 and B12345 read access to your 192 minidisk, enter:

RACFREAD 192 B98765 B12345

To give the computer consultants in User Services read access to your 191 minidisk, enter:

RACFREAD US

For additional information, enter:

HELP RACFREAD

HOW TO ACCESS 3480 CARTRIDGE TAPE DRIVES IN CMS

CMS users can access the new 3480 cartridge tape drives (see "Cartridge Tape Drives Have Arrived" in the November 1989 *Newsletter*) with the same commands they have used in the past to access standard 9-track magnetic tape reels, except for using "CART" for the device type.

For example, to mount a scratch, write-accessible, non-labeled 3480 cartridge, enter:

MOUNT * CART WRITE 181 NL

For more information on the CMS MOUNT command, enter:

HELP MOUNT

CRAY NEWS

HOW TO ACCESS 3480 CARTRIDGE TAPE DRIVES IN UNICOS

CTD has acquired eight IBM-compatible 3480 cartridge tape drives from Storage Technology (see "Cartridge Tape Drives Have Arrived" in the November 1989 *Newsletter*). The cartridge drives are available for use in UNICOS, MVS, and CMS. You use the cartridge tapes just as you would 9-track tapes in UNICOS. To use the cartridge tape drives in UNICOS instead of 9-track tapes, use CART for the device type when using the CTD-provided **anlrsv** and **anlmntp** tape scripts. To reserve cartridge tape drives in UNICOS, enter:

anlrsv CART number

where "number" is the number of cartridge tape drives to reserve for the Network Queuing System (NQS) job or interactive session. All eight cartridge drives are defined to UNICOS. However, if you believe your NQS job or interactive session requires more than two cartridge drives simultaneously, call the User Services consultants (extension 2-5405) for advice. Jobs that request more than two cartridge drives may experience long delays until the drives can be made available to UNICOS.

To mount a cartridge tape after reserving the drive, enter:

**anlmntp CART volser pathname labeltype
filestat ringstat name=name
fileseq=nn recfm lrecl=lrecl
blksize=blksize -options**

where "volser" is the 6-digit volume serial number; "pathname" is a valid UNICOS pathname that you will use to refer to this tape; "labeltype" is SL, AL, or NL; "filestat" is new, old, or append; "ringstat" is write (ring) or read (noring); "name" is a file name for SL or AL tapes; "nn" is the file sequence number for the file; "recfm" is the tape file record format: F (for fixed length records), V (for variable

length records), U (for undefined length records), or D (for ANSI variable length records); "lrecl" is the record length of the largest record in bytes; "blksize" is the maximum physical blocksize in bytes; and "-options" are any UNICOS mntp command options that the **anlmntp** command does not provide. We discourage the use of NL cartridge tape because, once the tape is mounted inside the drive, it is difficult for operators to verify the tape volume serial number.

When you use cartridge tapes, all other UNICOS tape commands are unchanged.

MANAGEMENT INFORMATION SYSTEMS

CICS NOW AVAILABLE FROM 7:00 A.M. UNTIL 5:30 P.M. WEEKDAYS

CTD has extended the scheduled weekday availability for the Customer Information Control System (CICS). CICS is used for accessing such administrative systems as the Argonne Materials Order System (AMOS), the Materials CATALOG (MCAT), the ISI Personnel System, and the new Integrated Financial System (IFS). Previously, CICS was available between 8:30 a.m. and 5:00 p.m. Now, CICS is available from 7:00 a.m. to 5:30 p.m. (see "Increased Availability of Central Computers" in this *Newsletter*). As the need for CICS increases because of additional administrative applications, CTD will review the need to further increase CICS availability.

LIBRARY SYSTEM SELECTED

Technical Information Services (TIS) operates eight science libraries and the Technical Publications Services to fulfill the information needs of scientific and technical research conducted at the Laboratory. Currently, 20-year-old data processing programs running on the IBM mainframes in CTD handle a portion of the records of Argonne's library collections.

In FY1988, TIS received Administrative Data Processing Oversight Committee (ADPO) funding to plan for the purchase of an automated library

information management system to provide online information to ANL staff and to manage the records of Technical Publications Services, the libraries, and the library support services. During the first phase of the project, TIS (working with the Library Automation Advisory Committee and CTD) identified ANL staff views, internal requirements and priorities, and potential vendors of library information systems.

With FY1989 ADPO funding, TIS completed the solicitation process and purchased a library information management system package. TIS selected Information Dimension's BASIS Techlib software package. This package will operate on CTD's VAX 8700 computer and will be accessible to TIS staff and all ANL staff through terminals located in the libraries. ANL staff will also be able to access the system by using their office workstations via the existing telecommunication networks at the Laboratory. The first component of the system is scheduled to be operational during the summer of 1990.

INTEGRATED FINANCIAL SYSTEM UPDATE

In November 1989, the Integrated Financial System (IFS) Project Team distributed a list of the current IFS report user selection criteria for verification by the users. Anyone who thinks they should have received selection verification information and did not should contact Nick Moore at extension 2-8075.

Also in November 1989, the Project Team performed report modifications that had been suspended because of the requirements of the fiscal year-end processing. The Project Team is beginning to develop some new IFS reports (including travel reports).

Plans for Information Expert (IE) include routing user reports to the user's preferred destination beginning with the December 1989 month-end reports that Management Information Systems (MIS) will produce the second week of January 1990. More detailed plans for IE and the user environment were discussed at the Financial Applications Committee to Effect Telesis (FACET) meeting on November 14, 1989, and will be described in the next *Newsletter*. Progress on all phases of the IFS project will be reported at FACET meet-

ings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

HOW TO ACCESS 3480 CARTRIDGE TAPE DRIVES IN MVS

MVS users can access the new 3480 tape cartridges (see "Cartridge Tape Drives Have Arrived" in the November 1989 *Newsletter*) in the same manner in which they now access other types of tape media. To use the 3480-type tape drives, code "CART" or "3480" with the UNIT parameter on the data definition (DD) statement associated with the tape. MVS does not use the DEN subparameter for cartridges and ignores any value that you code for density (DEN subparameter in the DCB parameter). An example of a DD statement necessary for writing on a new 3480 tape cartridge appears below:

```
//FT09F001 DD DSN=B98765.OUTFILE,DISP=(NEW,KEEP),
//          UNIT=CART,VOLUME=(,RETAIN),LABEL=(1,SL)
```

When you use a cartridge tape as a restart file or log file, use DCB=OPTCD=W to ensure that the data is actually written on the tape. The 3480 controller is a buffered device. In the event of a system failure without the OPTCD=W parameter, some data may be left in the buffer. Normally, you should avoid using DCB=OPTCD=W, because this parameter degrades the performance of the tape drives.

MVS SAS users should use the following statement at the beginning of their SAS program to minimize the amount of I/O to a 3480-type cartridge tape:

```
OPTIONS BLKSIZE=32760;
```

Direct any questions you have on the use of the 3480 cartridge tape drives to the User Services consultants at extension 2-5405.

TELECOMMUNICATIONS NEWS

ESNET BECOMES OPERATIONAL

The first phase of a new nationwide network, ESnet, has just been completed. The Energy Research program of the Department of Energy (DOE) funds ESnet. Argonne is a node on ESnet, which uses T1 (1.544 megabits per second) telecommunication links to interconnect Argonne, Fermi National Accelerator Laboratory, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory (the National Magnetic Fusion Energy Computer Center, NMFECC), and Princeton Plasma Physics Laboratory.

Currently, ESnet only carries traffic compatible with the Internet Protocol (IP), which includes the Transmission Control Protocol (TCP) used by most Unix-based computers and some others and the Network Services Protocol (NSP) used by NMFECC users. Soon, ESnet will have dual protocols: IP and DECnet. When DECnet is available, ESnet will be used as the communications backbone network for the High Energy Physics network, HEPnet. In a year or two, ESnet will also include the newly emerging Open System Interconnect (OSI) network protocol standard.

Currently, we route only data packets to the NMFECC (IP networks 128.55.0.0 and 128.115.0.0) via ESnet. Since the number of hops (five hops versus thirteen hops) that the packets must travel is less than the previous route that was via the National Science Foundation network (NSFnet), we now experience faster transfer rates with less latency. (We hope for better reliability, but it is still too early to tell). Packets sent to destinations on the Department of Defense network, MILnet (IP network number 26.0.0.0), are sent via MILnet; traffic to all other offsite locations is sent via NSFnet. As we gain more confidence with ESnet, we will route traffic to backbone sites connected to ESnet via ESnet rather than NSFnet.

DOE plans to expand the number of sites connected to ESnet in the next six months to include the NASA Ames Research Center, Brookhaven National Laboratory, the Continuous Electron Beam Accelerator Facility, the California Institute of Technology, Florida State University, General

Atomics, Los Alamos National Laboratory, the Massachusetts Institute of Technology, New York University, Oak Ridge National Laboratory, the Pacific Northwest Laboratory, the Stanford Linear Accelerator Laboratory, the Superconducting Super Collider, the University of California at Los Angeles, the University of Maryland at College Park, and the University of Texas at Austin. Plans are also underway to provide links from ESnet to Europe to provide accessibility to the Centre Etudes Recherche Nucleaire (near Geneva, Switzerland) and the Federal Republic of Germany at Garching.

Many Argonne users access NMFECC via the Magnetic Fusion Energy network (MFEnet I). This network uses older nonstandard protocols, lower-speed telecommunication lines, and satellite links. ESnet will make MFEnet I obsolete, and we expect that MFE personnel will take MFEnet I out of service in early FY1990. CTD is developing a transition plan for users to move from MFEnet I to ESnet and will provide further details in future articles. If you have any specific questions about ESnet, contact Larry Amiot at extension 2-5432.

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,900 computers at over 1,025 sites. Since the last *Newsletter* article in October 1989, the following universities and organizations have joined BITnet:

Brookings Institution
Center for the Study of Human Polymorphism--Paris
Central Washington University--Ellensburg
CSNET Information Center
Eastern Kentucky University
Medical College of Pennsylvania
Morehead State University--Kentucky
National Center for Science Information Statistics--Tokyo
North Carolina A&T University
Osaka University of Commerce
Plymouth State College--New Hampshire

Southern College of Technology--Marietta, Georgia
United Nations University--Japan
United States Coast Guard Academy
University of Wisconsin--Platteville
University of Wisconsin--River Falls
Western Carolina University--Cullowhee,
North Carolina

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

HELP BITNET NODES

VAX/VMS NEWS

DIRECTORY MANAGER AVAILABLE ON CENTRAL VAX CLUSTER

Users with a central VAX Cluster account can now use a full screen utility known as Directory Manager (DM), which CTD obtained from the DEC Users' Society (DECUS).

DM gives users a visual representation of their directory structure and allows users to work with their files and directory structure more easily. Some of the advantages DM provides are:

1. Easy access to directories and files.
2. Easy execution of long DCL commands by using one or two keystrokes.
3. Easy modification of commands to each user's specification.
4. Easy location and identification of outdated or obsolete files so that they may be deleted.

To use the Directory Manager utility, enter:

\$ DM

DM works best with VT2nn and VT3nn series terminals. DM also works with VT1nn-type terminals. CTD has tested DM on the Apple Macintosh II with Kermit Version 0.9(40) and Telnet Version 2.2TN and on the IBM Personal Computer with Kermit Version 2.32/A and Telnet Version

TN3270. CTD found DM to be compatible with most VT-type terminals, except for a few keys on VT1nn terminals (see Table 2).

The *DM Users' Guide* is available at the Document Distribution Counter (Building 221, Room

A-134) or through the mail (by calling extension 2-5405 and requesting a copy). The *DM User's Guide* is also available online as an ASCII text file (**sys_anlcommon:[dm]dm.doc**). For assistance with DM, contact David Lifka at extension 2-2351.

Table 2: Directory Manager Function Keys

Required DEC-VT Keystrokes		Equivalent Keystrokes			
		Apple Macintosh II Extended Keypad		IBM Personal Computer	
		KERMIT 0.9(40)	TELNET 2.2TN	KERMIT 2.32/A	TELNET TN3270
GOLD T	Go to TOP of Directory Display	CLEAR T	CLEAR T	F1 T	F1 T
GOLD B	Go to BOTTOM of Directory Display	CLEAR B	CLEAR B	F1 B	F1 B
GOLD F or K	Quit: Exit to starting directory	CLEAR K	CLEAR K	F1 K	F1 F
GOLD G	Get files (copy files into this directory)	CLEAR G	CLEAR G	F1 G	F1 G
GOLD H	Help	CLEAR H	CLEAR H	F1 H	F1 H
GOLD ,	Find a search string in the file name	CLEAR ,	CLEAR ,	F1 ,	F1 ,
GOLD .	Find the previous search string	CLEAR .	CLEAR .	F1 .	F1 .
GOLD \$ or [Go to DCL (Subprocess) Press RETURN to come back to DM	CLEAR [CLEAR [F1 \$[F1 [
GOLD W	Write files (copy files out of this directory)	CLEAR W	CLEAR W	F1 W	F1 W
GOLD P	Print DM directory on default printer	CLEAR P	CLEAR P	F1 P	F1 P
GOLD A	Additional Options: Change default options	CLEAR A	CLEAR A	F1 A	F1 A
GOLD D	Change to another disk device and/or directory	CLEAR D	CLEAR D	F1 D	F1 D
GOLD I	(Big I) DIR/FULL of current file or tagged file	CLEAR I	CLEAR I	F1 I	F1 I
GOLD M	VMS MAIL	CLEAR M	CLEAR M	F1 M	F1 M
Keypad 3	Move up one directory level	Keypad 3	Keypad 3	Shift F5	ALT 3

NOTE: CLEAR on the Apple extended keypad requires pressing the "NUM LOCK CLEAR" key.

ANSYS UPGRADE AVAILABLE FOR TESTING

ANSYS 4.4 (from Swanson Analysis Systems, Inc.) is now available on the central VAX 8700 for testing. When user testing is completed, ANSYS 4.4 will replace ANSYS 4.3A. ANSYS 4.4 has some enhanced analysis capabilities and new ancillary programs.

One of the main features of ANSYS 4.4 is the addition of a menu-driven interface combining keyboard and mouse operations to access, retrieve, display, choose, and execute ANSYS commands. This interface is new and will probably undergo corrections, revisions, and enhancements in the future.

There are several other enhancements and additions in ANSYS 4.4. Revision 4.4 has improved file handling procedures. For example,

the standardization of ANSYS binary files allows file transfer between dissimilar machines. Also, it is now possible to execute system commands (for example, to edit a file or to read/send mail) from within an interactive ANSYS session.

In the preprocessing phase of ANSYS, Revision 4.4 has several useful commands to simplify and enhance model construction and solid modeling capabilities. For example, you can mesh 2-D irregular regions into mostly quadrilateral elements with very few triangular elements. Swanson Analysis Systems, Inc. has added several new elements (including a STIF46 for thick composite structure) in the element library and has removed, modified, or enhanced others.

Swanson Analysis Systems, Inc. has upgraded the solution phase for improved efficiency and accuracy. Among the changes are exploitation of

parallelism at the system level to speed up the solution process. Revision 4.4 removes the maximum wavefront size restriction of 3000 degrees of freedom.

In postprocessing, the introduction of an error approximation technique to measure the finite element meshing quality (and thus the accuracy of the results) is noteworthy. Also, Revision 4.4 makes the local coordinate systems from preprocessing accessible for postprocessing operations.

If you need more specific information about the Revision 4.4 changes, see *Revision 4.4 Changes to ANSYS Program*, available in the Consulting Office (Building 221, Room A-139). A summary of these changes is included in an eight-page appendix to the *Version 4.4 Users Manual*. CTD will order ANSYS 4.4 documents for users on request.

The new ancillary programs are PLOTPS, CMAP, COPYEX, and CONEXT. PLOTPS converts your FILE33 graphics output to PostScript output for your PostScript printer. The CMAP program allows you to create a device-specific color map file to override the ANSYS default. You use COPYEX to convert ANSYS files from VAX/VMS format to external format and vice versa. CONEXT is another conversion program that simplifies importing external ANSYS files to the VAX/VMS system from some other system.

Access to ANSYS 4.4 is through the VAX cluster **SETUP** command. You may access any one of several versions of ANSYS by "setting up" the version you need. After executing SETUP, the ANSYS commands for all versions are identical. To set up ANSYS 4.4, enter:

```
$ SETUP ANSYS /V=version
```

where **version** is either of two values, **SMALL44** or **LARGE44**. The **version** string value selects versions of the ANSYS analysis program designed to solve finite element problems with maximum ANSYS wavefront 580 (**SMALL**) and 2000 (**LARGE**). For example, to use the large version of the ANSYS 4.4 programs, enter:

```
$ SETUP ANSYS /V=LARGE44
```

CTD can generate versions of ANSYS 4.4 with larger wavefronts (if necessary) to solve very large ANSYS problems. If your needs exceed the capabilities of our current implementation, contact the User Services consultants at extension 2-5405.

MASS-11 VERSION 8.0 AVAILABLE FOR TESTING ON THE VAX 8700 COMPUTER

CTD has installed Version 8.0 of Mass-11 (from Microsystems Engineering Corporation) on the VAX 8700 computer for user testing. Mass-11 is a VAX-based word processor used by several divisions at the Laboratory.

The enhancements available in Mass-11 Version 8.0 are:

- New electronic publishing features. A preview mode shows line, page, and column endings and proportional text with varied fonts and point-sizes. A bounding box shows the size and position of integrated graphics. You can switch to preview mode with a few keystrokes without leaving the document you are editing. After checking the positioning, layout, etc., you can switch back to your document for further editing, again by entering a few keystrokes.
- A pop-up font menu. You can select the font you want from a pop-up menu.
- Integration of encapsulated PostScript files. You can position your PostScript graphics anywhere on a document page. You can also use outline and gray-scale fonts. You can scale PostScript graphics figures to any size and stretch them along either axis.
- Enhanced page formatting control. You can specify page dimensions in inches or centimeters. A "vertical ruler" allows you to specify formatting options for a page or section within a document. The horizontal "sliding ruler" allows you to select different point-sizes for document lines and table entries. With Version 8.0, you can now keep text and titles from being split between pages.
- A thesaurus with 470,000 synonyms. You are presented with a list of synonyms when you select one of the 40,000 look-up words. If you

select a synonym from this list with your terminal's cursor, the synonym automatically replaces the look-up word in your document.

In addition to the above enhancements, the Microsystems Engineering Corporation has completely rewritten the Mass-11 reference manual. *Mass-11 Version 8.0 Release Notes* is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Currently, the default version of Mass-11 is 7.B. To test Version 8.0, enter:

```
$ SETUP MASS11/V=8
```

At the DCL "\$" prompt, enter:

```
MASS11
```

If you have difficulty using Mass-11 Version 8.0, contact the User Services consultants at extension 2-5405.

In the September 1989 *Newsletter* article, "Plans To Discontinue Mass-11 on the Central VAX 8700," we discussed not renewing the Mass-11 license. However, CTD has renewed the license until July 1990. Several ANL divisions have stated that keeping Mass-11 on the central VAX 8700 is necessary for their contingency plans.

UPDATED TELLAGRAF 6.1 HAS ACCESS TO NEW DRIVERS ON THE VAX 8700 COMPUTER

Computer Associates (CA) has distributed a new release of Tellagraf 6.1. This release includes many fixes and provides drivers for several new devices. CTD has installed this release of Tellagraf on the VAX 8700 computer and is making it available for testing. New versions of Cuechart, ANYPOP, and CGMPOP are also available.

The drivers available with the test version of Tellagraf are:

- POP (a CA proprietary postprocessor metafile)
- PostScript
- CGM (Computer Graphics Metafile)

- DEC REGIS (available on VK100 [GIGI], VT125, and VT24x terminals)
- A dummy device simulator
- DEV_VT2 (VT24x terminals)
- DEV_VT3 (VT330/340 terminals)
- Tektronix models 4010, 4012, 4013, 4015, 4016, 4025, 4027, 4051, 4052, 4054, 4081, 4104, 4105, 4106, 4107, 4109, 4111, 4112, 4113, 4114, 4115, 4125, 4128, 4129, 4207, 4205, 4208, 4209, and multiple hardcopy printers and plotters
- A Talaris 1590 printer
- Hewlett-Packard models 2397, 2627, 2703, 7220, 7221, 7440, 7470, 7550, 7580, 7585, 7586, and 9872

Currently, Tellagraf is automatically defined for users when they log into ANLCV1, which lengthens the login process for all interactive and batch users. To reduce interactive login time, CTD plans to remove the Tellagraf definition from the ANLCV1 login process and will place it into the VAX cluster SETUP function. Tellagraf users should begin using the SETUP function to define Tellagraf in their ANLCV1 sessions. In a future *Newsletter*, we will announce the date when this version of Tellagraf becomes the production version.

To use the current production version of Tellagraf, enter:

```
$ SETUP TELLAGRAF
```

To use the Tellagraf test version described in this article, enter:

```
$ SETUP TELLAGRAF /V=TAG61T
```

To learn more about SETUP, enter:

```
$ HELP SETUP
```

Direct questions and comments about Tellagraf 6.1 to Mike Thommes at extension 2-5461 or via electronic mail at ANLVM::B14908.

BITS & BYTES

CUMULATIVE SUBJECT INDEX

Each December we publish the cumulative index from the *Newsletters* of previous years. Other monthly issues include an index only for the current calendar year.

CMS and VAX users may search the entire *Newsletter* index online for a particular *Newsletter* topic by entering:

LOOKUP topic

where "topic" is the name of the topic (one or more words) for which you need information. LOOKUP will display the topic entries on the CMS user's terminal and will return a file to the VAX user's "READER" subdirectory. The filename will be "LOOKUP.topic" and can be either "TYPed" to your terminal or sent to a printer.

Wylbur users may use LOOKUP by entering

DO LOOKUP

and responding to the prompt for a topic. After the system has sent the information to your fetch queue, enter:

FETCH topic

Then enter:

LIST

The system will list the page numbers for every index entry containing the topic name.

For more information, enter:

HELP LOOKUP

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

Electronic Mail at ANL (ANL/TM 431, Revision 2) discusses concepts, issues, and commands basic to electronic mail and describes the capabilities and limitations of the electronic mail systems at ANL, with an emphasis on communication through BITnet. The document is divided into five chapters and seventeen appendices. Chapter 1 explains how electronic mail may benefit you and answers many basic questions about this communications system. It defines electronic mail, compares it with conventional mail and telephone communication, lists the benefits electronic mail users enjoy, and familiarizes readers with the electronic mail universe accessible to Argonne. Chapter 2 defines three electronic mail concepts: (1) addresses, (2) networks, and (3) gateways. It also explains how to find electronic mail addresses, how to communicate electronically when at home or traveling, and how systems format electronic mail files. Chapter 3 explains how users send electronic mail through the electronic mail systems at Argonne. Structured descriptions of each mail system provide answers to basic questions on how to use each system. Chapter 4 describes the three major Laboratory-wide electronic mail networks at Argonne (NJE, DECnet, and TCP/IP) and their connections. Chapter 5 describes which networks and network gateways are available to Argonne electronic mail users. This chapter provides such information as what the networks are, their size, and where they are located. The appendices provide more details about the different networks. This revision supersedes the March 1986 printing.

The *Asynchronous Data Communications User Guide with ADI/ACI Operating Instructions* (ANL/TM 469) describes how to use the Private Branch Exchange (PBX) for asynchronous data communications. The *Guide* begins with a general

description of the data communication capabilities of the PBX. The description is fairly detailed; parts of it may be beyond the interest of casual users who typically use one computer terminal to communicate with another computer system. However, we recommend that all users read the *Guide* to gain a fuller understanding of the system.

Cray Research, Inc. Documents

The *TCP/IP Network User's Guide* (SG-2009 D) introduces network users to the communication capabilities available with the Transmission Control Protocol/Internet Protocol (TCP/IP) on Cray computer systems running the Cray operating system, UNICOS. The *Guide* is divided into six sections and one appendix. Section 1 introduces computer networking and TCP/IP. Section 2 describes how to locate names of hosts on the `/etc/hosts` file, the functions of the TCP/IP commands, and how to create and view files that authorize users of a TCP/IP network. Section 3 describes how to execute commands on remote hosts. Section 4 describes how to copy and transfer files with the `ftp` and `rcp` utilities. Section 5 describes how to send and receive network mail and messages. Section 6 describes how to display user and host information with the `finger`, `ping`, `hostname`, and `hostid` utilities. Appendix A provides a list of error messages and describes possible causes and solutions to the errors. Readers should be familiar with either Unix or UNICOS and the networking products installed on their workstations or computer terminals.

Computer Associates Documents

The *CA-Disspla User Manual* (RG99DS1102S) contains two volumes that describe all features that come with the base CA-Disspla package. These features include subroutines that draw axes, curves, simple figures, text, three-dimensional axes, and many tools (such as interpolation and blanking). *Volume 1: The Basic Graphics System* is divided into ten chapters. Chapter 1 provides a tutorial illustrating how you can create a graphic and explains important CA-Disspla concepts, conventions, and Fortran 66 and 77 concerns. Chapter 2 describes how to set up the plot page and to establish certain global parameters. Chapter 3 explains how to define and modify axis systems. Chapter 5 includes simple subroutines that draw straight lines and conic sections unrelated to physical data. It also includes subrou-

tines that draw basic shaded bars and pies for charting. Chapter 6 provides all the subroutines that draw or manipulate text on a plot. Headings, annotation, legends, character style, alphabets, line spacing, and other text features are described in this chapter. Chapter 7 provides subroutines that shade specific or arbitrary areas and let you create continuous tone images from pixel data. Chapter 8 explains the CA-Disspla blanking system and provides several subroutines to use in addition to the automatic blanking subroutines. Chapter 9 describes three-dimensional graphics. Three-dimensional axis setup, viewing, and three-dimensional curve drawing are addressed in this chapter. Chapter 10 describes subroutines that can act on any CA-Disspla feature.

Volume 2: Options describes each of the options to CA-Disspla that your site may choose to license. *Options* is divided into four main sections. The "Presentation Option" section describes the Business Features, Page Layout, and Shaded Fonts features. The "Productivity Option" section describes the Codebook, Metafiles, and Dynamics features. The "Engineering Option" section describes the Mapping, Contouring, Object Rendering, and CA-GKS features. The "Devices" section provides general information for producing graphics on output devices. Readers should have a working knowledge of Fortran.

Other Vendor Documents

Using PC DOS (0-88022-419-3) contains the author's directions, suggestions, and information regarding DOS. This book is the third edition and contains six parts. Each of the six parts covers the new information on DOS V4. Part I offers a short course on DOS for the new user. It also provides examples of basic DOS commands. Part II covers frequently used commands, how DOS and the different devices work, how floppy disks and their drives work, how DOS hard disks work, and how to name disk drives. Part III defines and explains how to use redirection and piping, hierarchical directories, and batch files and subcommands. Part IV explains how to customize DOS to suit your needs. Part V explains how to manage your system. Part VI discusses old and new DOS commands for reference. This book supersedes *Using PS DOS* (0-88022-170-4).

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD NOVEMBER 7, 1989

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:05 p.m.

Cartridge Tape System. Jerry Davison (Computing and Telecommunications) reported that CTD has installed the 3480 cartridge tape drives. This system contains a controller with a four-channel interface and cross coupling capability and a four-megabyte buffer upgrade. There are two 2-cartridge drive units that allow automated loading of new scratch tapes on each of the four drives and one 4-cartridge drive unit. (See "Cartridge Tape Drives Have Arrived" in the November 1989 *Newsletter*.)

CTD recommends that users use the new drives when creating new tape files. The use of NL tape is **STRONGLY DISCOURAGED**, since the operators cannot see the tape number when the cartridge is in the drive. Also, CTD recommends that users refrain from copying 6250 tapes to the new cartridges now, because of the limited supply of cartridges. CTD anticipates that by next year there will be no new 6250 tapes, as users move to the 3480 cartridges. Each cartridge holds about 20 percent more than a 6250 tape with considerably faster data transfer and lower error occurrence. (Since this meeting, the cartridge tapes have arrived and are readily available.)

Jerry also reported that the Request for Proposal (RFP) for the IBM 3033 replacement computer finally has DOE approval and will go to Purchasing soon.

Computer Resource Usage Review. Doug Engert (Computing and Telecommunications) showed various viewgraphs of the current Cray usage. Unlike last year, there was no noticeable drop in usage when the new fiscal year started. The regular usage and income is as high as it has been since March 1989. Currently, Chemistry uses about half the time used on the Cray through their grant. To avoid severely affecting other users, Chemistry has its own queue. This queue allows

other users to have access to the machine, even when Chemistry submits many long running jobs. Currently, users use about 570 hours per month on the Cray.

IBM Full Screen Emulation Via tn3270 from Multiple Platforms. Pete Bertoncini (Computing and Telecommunications) and Dave Leibfritz (Computing and Telecommunications) gave a review of the ability to access the IBM systems from Sun, VAX, IBM Personal Computer, and Apple Macintosh systems with ASCII terminals and to have the terminal respond like an IBM 3278 full screen terminal. This access is done through a tn3270 package that is available on most computer platforms. The keymaps for the various terminals are on the local machine and may be changed to suit individual users. The defaults do not have to be used. For more information, see "IBM Full Screen Access from the VAX 8700 Computer" in the November 1989 *Newsletter*.

Data Management Subcommittee Report. Bert Toppel (Engineering Physics) reported on the Data Management Subcommittee meeting held on November 2, 1989, at which the main topics were the cartridge tape system (see above) and the new setup for the Resource Access Control Facility (RACF) administrators. CTD encourages users to eliminate datasets from the offline volumes with the PURGEDSN command.

Jerry Davison distributed a draft *Newsletter* article describing how to use the new cartridge tapes. The system is installed and accepted, but the tapes are still en route to the Laboratory. They are expected to arrive by next week. CTD will announce their availability via the logon message. You can pick up a copy of the *Newsletter* article in the Scheduling Area (Building 221, Room A-134). Also, it will appear in the November 1989 *Newsletter*. Jerry expressed disappointment that users were not making more use of the PURGEDSN capability to eliminate obsolete migration datasets.

Fred Moszur discussed proposals for modifying the RACF administration procedures and the new capabilities available to cost center RACF administrators. Planned significant new features include the ability of group RACF administrators to control authorization for datasets owned by users controlled by that group administrator and the ability to have multiple RACF administrators with

equal authority. Someone suggested that cost centers with sensitive data isolate the sensitive applications and their own userids by creating separate RACF groups. Also, it would be desirable to have a separate auditor for groups with sensitive data.

Fred distributed draft *Newsletter* articles describing commands for users to protect MVS datasets and for RACF administrators to control logon privileges, to extend their group, to create subgroups, etc. These articles will appear in the December 1989 *Newsletter*, when CTD installs the new capabilities.

On January 11, 1990, CTD plans to protect the remaining unprotected minidisks with RACF. Also, CTD plans to move to generic RACF profiles with universal access NONE for all datasets in MVS. These plans would probably occur after January 11, 1990.

Computing Policy Committee (CPC) Meeting Report. Dotti Bingham reported on the Committee meeting held on November 3, 1989. Joe Asbury (Office of the Director) presented the following recommendations of the CTD Budget Committee:

1. Establish the position of CTD Assistant Division Director for budget and general administrative support, and add three positions to networking and/or general user support.
2. If savings can be achieved by further automation in computer operations, CTD should apply them to improving capabilities and services in user support functions and then to assisting users in making optimal use of the available computing facilities (such as vector supercomputers, multi-processor vector supercomputers, and various other parallel processors).
3. CTD should separate further its services in support of central computing from those in support of Laboratory-wide networking. CTD should analyze the three networking cost-recovery schemes of Cy Adams and the equipment-tax alternative of Dale Koelling and should propose a new charging scheme to the CPC.
4. CTD is encouraged to develop initiatives in parallel processing and visualization by using programmatic sponsors as sources of support

and not central computing charges or revenues from computing floors.

Joe also stated that the Management Council is still working to allocate computing floors for FY1990 to the Associate Laboratory Directors.

Mike Boxberger displayed graphs of computer utilization (see earlier agenda item). Mike also distributed copies of the new *ANL Statement of Site Strategy for Computing Workstations* (ANL/TM 458), which CPC members reviewed earlier. Mike then presented the CTD prioritized list of FY1990 General Purpose Equipment (GPE) funding requirements. CTD goals for GPE funding are (1) to enhance access to current and future generation supercomputers, (2) to provide high-speed local area and wide area networks, (3) to promote Unix operating system standards, and (4) to introduce state-of-the-art visualization techniques in computational science and engineering. The first eight items on the list (which total \$593,000) are a fiber distributed data interface, a computer animation digital image storage system, Unix-based application support facilities (Phase I), a Transmission Control Protocol/Internet Protocol (TCP/IP) terminal server, a VAX video storage interface, a Digital Equipment Corporation (DEC) VAX 8700 memory upgrade, a protocol analyzer, and a graphics superworkstation.

The CUG meeting adjourned at 3:46 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD NOVEMBER 8, 1989

John Mattson (Materials Science) opened the meeting at 11:05 a.m.

Jonathan Weinstein (Claris) gave demonstrations of the Claris Computer-Aided Design (CAD), SmartForm Designer, and MacWrite II. Claris CAD is a two-dimensional design and drafting tool for engineering, presentation, and architectural use. It is a powerful (yet easy to use) tool that requires minimal use of the program manual. To make this program easy to use, Claris CAD builds on the techniques already used in Claris MacDraw II. To use Claris CAD:

1. Select the tool icon. As the icon is clicked, a horizontal icon menu pops out to allow a more accurate tool specification (such as draw from center).
2. With the tool icon active, activate a method icon (such as attach line to object as a tangent). The method icon applies to the selected tool.
3. Choose one or more modifiers by typing into the option boxes that appear at the bottom of the screen to control such features as angles or percent location of a snap between two points on a line. These modifier boxes change depending on the tool and method selected.

Claris CAD comes with a 45-minute video that provides 75 percent of the training needed to use it.

Some of the features of Claris CAD are:

- Automatic dimensioning. The units and other features of the dimensioning are easy to change.
- A variable zoom feature. One selects the area that one wants to see in more detail. This area then zooms to fill the whole screen.
- A dialog box. With most items and dimensions, one can call up a dialog box to access a whole range of possible changes.
- A disjoin feature. One can disjoin the lines of an object (for example, a rectangle).
- A symbol library.

In addition, the Claris CAD program is faster than the MacDraw II program on an Apple Macintosh II. Claris CAD is \$799 but is available to us through a special agreement with the University of Chicago for \$205. Jonathan did not demonstrate a valuable companion program, Claris Graphics Translator, that is available for \$299. This program converts Claris CAD drawings to a variety of formats (including AutoCAD 10.0), and the conversion process can go the other way as well.

Claris SmartForm Designer allows one to create electronic or paper forms with a minimum of effort. MacDraw-like tools are available to do this, and most fields have a variety of pop-up dialog boxes for specifying such things as how a field will

be formatted. One can also build in pop-up dialog boxes for the user to access. Thus, the form can be easy to use once it is created. Based on the demonstration, it appears that one has a lot of flexibility in creating the form. Claris SmartForm Designer is \$399. A companion to Claris SmartForm Designer is Claris SmartForm Assistant. This program allows others to use the completed forms. Claris SmartForm Assistant is \$49. However, it is \$15 per copy if a site has 50 or more copies.

Claris MacWrite II has (1) the ability to open multiple documents at once, (2) multiple columns, (3) page preview before printing, (4) the ability to reduce page size and continue to edit, (5) horizontal scrolling, (6) the ability to find and change attributes like boldface, type size, and type name, (7) the use of the font style name in the pull-down menu, and (8) the availability of the Adobe type manager, which means that the screen display will look much closer to the final Apple LaserWriter print-out. Jonathan showed the number (approximately 20) of Apple Macintosh and DOS word processor formats that one can access with Claris MacWrite II. In addition, one can save into these same formats. Thus, Claris MacWrite II should be very important in a mixed network environment. The cost of upgrading from earlier Claris MacWrite versions is \$75. Claris MacWrite II is available through a special agreement with the University of Chicago for \$85 and, as an upgrade, for \$25.

On Wednesday, December 13, 1989, in dining rooms A and B of the cafeteria, there will be an Applefest to show hardware and software for the Apple Macintosh computer. This Applefest will be scheduled around the ANL Macintosh Users Group meeting on the same day. At the regular Users Group meeting, Eliot Axelrod (Apple's technical representative for Argonne and the University of Chicago) will demonstrate the new Apple Macintosh IIci and Apple Macintosh portable computers. He will also talk about the upcoming revision to the Apple Macintosh operating system, System 7.0.

At the January 1990 meeting, Ashton-Tate will demonstrate their spreadsheet, Full Impact 2.0, and their word processor, Full Write.

At the February 1990 meeting, Alan Krauss (Chemistry) and Ralph Leonard (Chemical Technology) will demonstrate two other spreadsheets, Wingz and Excel 2.2.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:05 p.m.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (OCTOBER 1 THROUGH OCTOBER 30, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,253	1,241	469
Wylbur	1,653	1,660	391
MVS TSO	54	54	6
CICS	1,653	1,660	93
MVS Batch	2,109	2,107	632
VAX/VMS	442	453	247
Cray	423	419	129
All Systems	2,109	2,107	929

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	12,505	2,227	1,718	16,450	34,272.1	106.48
Wylbur	7,556	367	486	8,409	8,161.9	9.99
MVS TSO	87	1	0	88	135.4	0.45
CICS	57	40	22	119	0.0	4.35
VAX/VMS	12,891	591	733	14,215	10,440.4	123.40
Cray	152	381	137	670	1,116.6	120.88
IBM BATCH						
Class U	9,645	1,742	1,230	12,617	n.a.	48.00
Class W	17,502	1,369	1,123	19,994	n.a.	143.54
Class X	0	835	22	857	n.a.	49.79
Class Y	0	0	1,119	1,119	n.a.	31.13
Nonmain	18,994	2,265	1,296	22,555	n.a.	0.00
Total	46,141	6,211	4,790	57,142	n.a.	272.46
CRAY BATCH						
u	152	381	137	670	n.a.	120.88
w	2,409	137	234	2,780	n.a.	65.68
x	982	62	74	1,118	n.a.	64.36
y	3,950	1,304	640	5,894	n.a.	191.80
Total	7,493	1,884	1,085	10,462	n.a.	442.72
VMS BATCH						
W BATCH	2,591	1,125	847	4,563	n.a.	26.95
X BATCH	8	24	14	46	n.a.	30.73
Y BATCH	1	1	47	49	n.a.	9.25
Total	2,600	1,150	908	4,658	n.a.	66.93

INPUT/OUTPUT

Lines Printed	
Local	70,831,593
Remote	50,740,589
Fiche	34,309,296
Cards Punched-Local Only	4,513
Tape Mounts	7,838
Microfiche Developed	4,056
Microfiche Frames Developed	726,355

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	108	n.a.
Matrix 35mm Color	424	1,065
Matrix-8 x 10	1	1
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	45	431
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	23,498
New Tapes Saved	1,067
Tapes Released	1,245
Datasets Exported to Tape	1,962
Datasets Imported from Tape	509

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (OCTOBER 1 THROUGH OCTOBER 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
YELLOW IBM 3033							
All Shifts							
Interruptions	16.00	1.00	8.00	2.00	4.00	1.00	
Hrs Unavailable	30.31	1.11	7.51	14.06	7.20	0.41	
MTF/Unscheduled	137.93				172.42	689.68	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13.00	1.00	8.00		3.00	1.00	
Hrs Unavailable	12.63	1.11	7.51		3.58	0.41	
MTF/Unscheduled	59.84				79.78	239.36	
RED IBM 3033							
All Shifts							
Interruptions	12.00	1.00	4.00	2.00		5.00	
Hrs Unavailable	18.61	0.66	2.71	13.70		1.53	
MTF/Unscheduled	140.27					140.27	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9.00	1.00	4.00			4.00	
Hrs Unavailable	4.81	0.66	2.71			1.43	
MTF/Unscheduled	61.79					61.79	

AVAILABILITY STATISTICS, BY SERVICE (OCTOBER 1 THROUGH OCTOBER 30, 1989)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	12.00	1.00	4.00	2.00		5.00	
Hrs Unavailable	18.61	0.66	2.71	13.70		1.53	
MTF/Unscheduled	140.27					140.27	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9.00	1.00	4.00			4.00	
Hrs Unavailable	4.81	0.66	2.71			1.43	
MTF/Unscheduled	61.79					61.79	
WYLBUR							
All Shifts							
Interruptions	16.00	1.00	8.00	2.00	4.00	1.00	
Hrs Unavailable	32.31	1.16	8.63	14.65	7.43	0.43	
MTF/Unscheduled	137.53				171.92	687.68	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13.00	1.00	8.00		3.00	1.00	
Hrs Unavailable	13.93	1.16	8.63		3.70	0.43	
MTF/Unscheduled	59.51				79.35	238.06	
MVS TSO							
All Shifts							
Interruptions	16.00	1.00	8.00	2.00	4.00	1.00	
Hrs Unavailable	32.36	1.16	8.68	14.65	7.43	0.43	
MTF/Unscheduled	137.52				171.90	687.63	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13.00	1.00	8.00		3.00	1.00	
Hrs Unavailable	13.98	1.16	8.68		3.70	0.43	
MTF/Unscheduled	59.50				79.33	238.01	
JES3							
All Shifts							
Interruptions	16.00	1.00	8.00	2.00	4.00	1.00	
Hrs Unavailable	30.46	1.11	7.66	14.06	7.20	0.41	
MTF/Unscheduled	137.90				172.38	689.53	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13.00	1.00	8.00		3.00	1.00	
Hrs Unavailable	12.78	1.11	7.66		3.58	0.41	
MTF/Unscheduled	59.80				79.73	239.21	
CICS							
All Shifts							
Interruptions	3.00				3.00		
Hrs Unavailable	3.73				3.73		
MTF/Unscheduled	238.75				238.75		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00				3.00		
Hrs Unavailable	3.73				3.73		
MTF/Unscheduled	82.75				82.75		
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	5.00	1.00	3.00			1.00	
Hrs Unavailable	6.20	0.75	5.16			0.28	
MTF/Unscheduled	713.80					713.80	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4.00	1.00	2.00			1.00	
Hrs Unavailable	3.70	0.75	2.66			0.28	
MTF/Unscheduled	248.30					248.30	
CRAY							
All Shifts							
Interruptions	15.00	8.00	2.00	2.00		3.00	
Hrs Unavailable	31.91	16.20	0.91	14.38		0.41	
MTF/Unscheduled	229.36					229.36	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4.00		2.00			2.00	
Hrs Unavailable	1.16		0.91			0.25	
MTF/Unscheduled	125.41					125.41	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (OCTOBER 1 THROUGH OCTOBER 30, 1989)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$1,115	\$287	\$3	\$597	\$153	\$2,154
272	ADVANCED PHOTON SOURCE	\$33	\$262	\$14	\$29	\$40	\$378
341	APS ACCELERATOR PHYSICS	\$57	\$733	\$4	\$47	\$40	\$881
345	APS VACUUM	\$0	\$2,845	\$0	\$54	\$1,240	\$4,140
347	APS CONTROLS	\$29	\$1	\$0	\$1	\$0	\$30
348	APS MAGNETS	\$53	\$0	\$0	\$6	\$1	\$60
349	APS POWER SUPPLIES	\$57	\$0	\$0	\$5	\$0	\$62
350	APS DIVISION MANAGEMENT	\$8	\$0	\$0	\$0	\$0	\$8
351	APS INSERTION DEVICES	\$4	\$0	\$0	\$0	\$0	\$4
361	APS PROJECT DIRECTION	\$12	\$0	\$0	\$0	\$0	\$12
362	APS MANAGEMENT GENERAL	\$16	\$0	\$0	\$0	\$0	\$16
SUBTOTAL		\$1,383	\$4,128	\$21	\$739	\$1,474	\$7,746
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$2,293	\$2,060	\$258	\$1,283	\$2,031	\$7,925
125	TECHNOLOGY TRANSFER CENTER	\$39	\$0	\$0	\$0	\$36	\$76
149	ENVIRONMENTAL RESEARCH DIV	\$2,446	\$223	\$804	\$623	\$357	\$4,453
155	ENERGY SYSTEMS DIVISION	\$1,888	\$270	\$471	\$223	\$563	\$3,415
165	ENV ASSESS & INFO SCI DIV	\$7,053	\$13,511	\$1,147	\$2,616	\$5,222	\$29,549
174	ENER/ENV/BIO PROG DIR	\$55	\$0	\$0	\$13	\$4	\$72
197	SPECIAL PROJECTS OFFICE	\$487	\$2	\$0	\$10	\$81	\$581
246	ES-NAT'L ENERGY SOFTWARE CTR	\$162	\$0	\$0	\$578	\$384	\$1,124
274	ENER/ENV/BIO RES PROG ADM	\$96	\$0	\$0	\$3	\$81	\$181
SUBTOTAL		\$14,518	\$16,067	\$2,680	\$5,349	\$8,760	\$47,375
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$2,391	\$26	\$1,855	\$463	\$43	\$4,778
104	EBR-II PROJECT-ILLINOIS	\$337	\$5	\$0	\$40	\$10	\$392
107	CHEMICAL TECHNOLOGY DIVISION	\$1,734	\$166	\$0	\$780	\$1,065	\$3,746
112	REACTOR ANAL & SAFETY	\$15,035	\$523	\$3,607	\$5,847	\$2,698	\$27,710
114	MATLS & COMP TECH DIV	\$6,717	\$3,045	\$29	\$2,336	\$1,905	\$14,031
115	ENGINEERING PHYSICS DIVISION	\$36,635	\$3,130	\$41,040	\$6,566	\$10,158	\$97,528
117	APPLIED PHYSICS-ANL WEST	\$2,803	\$7	\$7,264	\$316	\$347	\$10,736
118	REACTOR EXP & EXAM DIV	\$3,102	\$302	\$58	\$162	\$201	\$3,824
119	ANALYTICAL LABORATORY ANL-WES	\$0	\$0	\$0	\$0	\$36	\$36
171	ENGRG RES PROG DIR	\$4	\$0	\$0	\$0	\$86	\$90
211	ENGINEERING PHYSICS DIVISION	\$49	\$0	\$0	\$0	\$2,830	\$2,879
269	CHEM TECH DIV-ANALYTICAL CHEM	\$52	\$0	\$0	\$2	\$39	\$93
271	ENGRG RES PROG ADMIN	\$301	\$0	\$0	\$16	\$193	\$510
SUBTOTAL		\$69,159	\$7,204	\$53,854	\$16,528	\$19,610	\$166,354
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$4,007	\$3,334	\$6,093	\$2,216	\$495	\$16,145
109	PHYSICS DIV	\$1,946	\$660	\$543	\$1,547	\$287	\$4,983
120	CHEMISTRY DIV	\$1,086	\$2,007	\$283	\$1,267	\$3,794	\$8,437
136	INT PULSE NEUT SOURCE PROG	\$67	\$710	\$16	\$313	\$69	\$1,175
137	HIGH ENERGY PHYSICS DIV	\$1,766	\$2,236	\$7,115	\$958	\$1,243	\$13,320
139	DIV OF EDUCATIONAL PROGRAMS	\$2,251	\$0	\$0	\$168	\$82	\$2,501
145	MATHEMATICS & COMPUTER SCI DI	\$177	\$53	\$2,061	\$421	\$4,369	\$7,080
146	CTD DIV - SCI APPL & RES	\$106	\$2,653	\$9,910	\$653	\$-19,778	\$-6,455
273	PHYSICAL RESEARCH PROGRAM ADM	\$58	\$0	\$0	\$26	\$36	\$120
SUBTOTAL		\$11,464	\$11,654	\$26,022	\$7,571	\$-9,403	\$47,307
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$827	\$0	\$0	\$460	\$391	\$1,679
752	NAVY	\$10,416	\$0	\$0	\$1,203	\$5,554	\$17,173
753	MORGANTOWN ENERGY TECH CENTER	\$16	\$0	\$0	\$650	\$0	\$666
754	DEPARTMENT OF ENERGY AT ANL	\$22	\$0	\$0	\$0	\$22	\$44
755	ROCKWELL INTERNATIONAL	\$3	\$0	\$0	\$0	\$5	\$8
756	LOS ALAMOS	\$145	\$0	\$0	\$0	\$0	\$145
760	ABBOTT LABORATORIES	\$16	\$115	\$1,596	\$207	\$30	\$1,965
762	STATE UNIVERSITY OF NEW YORK	\$244	\$157	\$5,736	\$69	\$182	\$6,388
763	GENERAL ELECTRIC COMPANY	\$0	\$0	\$0	\$0	\$0	\$0
765	WESTINGHOUSE HANFORD COMPANY	\$22	\$2	\$16	\$3	\$0	\$43
766	BECHTEL NATIONAL, INC.	\$0	\$347	\$414	\$4	\$0	\$765
767	NUMERICAL ALGORITHMS GROUP, I	\$0	\$0	\$0	\$0	\$0	\$0
768	WESTINGHOUSE HANFORD COMPANY	\$0	\$0	\$0	\$0	\$0	\$0
771	PURDUE UNIVERSITY	\$4	\$0	\$0	\$0	\$0	\$4
774	BATTELLE	\$0	\$0	\$0	\$0	\$0	\$0
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$3	\$3
776	UNIVERSITY OF ILLINOIS AT CHICAGO	\$0	\$0	\$0	\$0	\$0	\$0
777	UNIVERSITY OF CHICAGO AT ANL	\$187	\$0	\$0	\$132	\$45	\$364
778	ARGONNE CREDIT UNION	\$8	\$0	\$0	\$0	\$0	\$8
779	UNIVERSITY OF ILLINOIS AT CHICAGO	\$8	\$0	\$0	\$0	\$0	\$8
780	NEW BRUNSWICK LABORATORY	\$92	\$0	\$0	\$0	\$0	\$92
781	STATE OF ILL DEPT MENTAL HEALTH	\$0	\$0	\$0	\$0	\$6	\$7
SUBTOTAL		\$12,012	\$621	\$7,762	\$2,728	\$6,217	\$29,341

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
OPERATIONS							
143	SUPP SERV DIV - ELEC DEPT	\$108	\$15	\$0	\$228	\$90	\$440
148	HUMAN RESOURCES-MEDICAL DEPT	\$1,343	\$0	\$0	\$170	\$405	\$1,918
150	SUPPORT SERV DIV - SPEC MATLS	\$192	\$0	\$0	\$24	\$176	\$392
161	TECH INFO SERVICES DEPT	\$2,095	\$163	\$0	\$227	\$2,446	\$4,930
201	OFFICE OF THE DIRECTOR	\$303	\$0	\$0	\$236	\$284	\$824
202	OFC OF CHIEF OPER OFCR	\$23	\$0	\$0	\$64	\$36	\$123
210	SUPP SERV DIV - CENT SHOPS	\$144	\$0	\$0	\$53	\$46	\$243
216	SUPPORT SERVICES DIVISION	\$201	\$0	\$0	\$57	\$36	\$294
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$0	\$36	\$36
232	SUPPORT SERV DIV - SECURITY	\$321	\$0	\$0	\$0	\$319	\$640
234	SUPP SERV DIV-HEALTH PHY	\$265	\$0	\$0	\$4	\$119	\$388
235	SUPP SERV DIV-ENV SAFE HEALTH	\$980	\$0	\$0	\$76	\$346	\$1,402
236	SUPPORT SERV DIV - FIRE DEPT	\$0	\$0	\$0	\$0	\$36	\$36
245	COMPUTING AND TELECOM DIV	\$14,665	\$0	\$0	\$3,139	\$2,523	\$20,326
247	COMP & TEL DIV - COM SERV	\$2,185	\$0	\$0	\$362	\$1,473	\$4,020
260	SUPP SERV DIV-GRAPHIC ARTS	\$174	\$8	\$0	\$906	\$122	\$1,210
275	OFFICE OF PUBLIC AFFAIRS	\$599	\$0	\$0	\$31	\$93	\$722
276	OFC PUB AF - MOTN PIC UNIT	\$30	\$0	\$0	\$0	\$3	\$33
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$285	\$0	\$285
315	SUPP SERV DIV-MATLS & SERV	\$3,260	\$0	\$0	\$724	\$684	\$4,669
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$93	\$93
317	PLANT FAC & SERV-DRIVE&RIG SER	\$12	\$0	\$0	\$0	\$36	\$48
319	SUPP SERV DIV-TRAVEL OFC	\$9	\$0	\$0	\$98	\$36	\$143
322	SUPP SERV DIV-PROCUREMENT	\$41	\$0	\$0	\$0	\$36	\$77
333	QA, ENVIR & SAFETY OFC	\$49	\$0	\$0	\$11	\$83	\$143
400	OFC OF CHIEF FIN OFFICER	\$56,163	\$0	\$0	\$1,361	\$12,255	\$69,780
401	ACCOUNTING	\$5	\$0	\$0	\$0	\$36	\$41
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$12	\$0	\$0	\$125	\$0	\$137
403	BUDGET OFFICE	\$0	\$0	\$0	\$0	\$36	\$36
410	HUMAN RESOURCES DEPARTMENT	\$8,457	\$0	\$0	\$808	\$1,283	\$10,547
412	AFFIRM ACTION PROGRAM	\$83	\$0	\$0	\$47	\$126	\$256
501	PLANT FAC & SERV-BLDG MAINT	\$35	\$0	\$0	\$35	\$90	\$161
502	PLANT FAC & SERV-INSTALLATION	\$0	\$0	\$0	\$0	\$36	\$36
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$36	\$36
504	PLANT FAC & SERV-CUSTODIAL	\$0	\$0	\$0	\$0	\$36	\$36
505	PLANT FAC & SERV-WASTE MGMT O	\$60	\$0	\$0	\$49	\$36	\$145
506	PLANT FAC & SERV-PLANT MGR OF	\$643	\$0	\$0	\$75	\$100	\$819
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$55	\$55
512	PLANT FAC & SERV-FAC PLNG/ENG	\$631	\$0	\$0	\$39	\$205	\$875
530	SITE MGRS OFC-ANL WEST	\$29	\$0	\$0	\$0	\$37	\$66
531	PERSONNEL-ANL WEST	\$35	\$0	\$0	\$2	\$36	\$73
532	SPECIAL MATLS-ANL WEST	\$857	\$0	\$0	\$147	\$182	\$1,186
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$36	\$36
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$36	\$36
535	SECURITY - ANL WEST	\$20	\$0	\$0	\$0	\$36	\$56
536	SAFETY STAFF-ANL WEST	\$199	\$0	\$0	\$3	\$38	\$240
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$0	\$36	\$36
538	MATLS HANDLING-ANL WEST	\$75	\$0	\$0	\$13	\$36	\$123
550	COMPUTER APPL & SERV - ANL-W	\$102	\$0	\$0	\$14	\$36	\$152
551	RAD MONITORING-ANL WEST	\$8	\$0	\$0	\$0	\$36	\$44
554	MACHINE SHOP-ANL WEST	\$29	\$0	\$0	\$3	\$36	\$69
556	SITE ENGRG-ANL WEST	\$111	\$317	\$0	\$231	\$48	\$707
557	PLANT SERVICES-AW-SERVICE REQ	\$87	\$0	\$0	\$9	\$36	\$132
558	PLANT SERVICES-AW-FUNCTION	\$4	\$0	\$0	\$0	\$0	\$4
559	FOOD SERVICES - ANL WEST	\$0	\$0	\$0	\$0	\$36	\$36
561	OFC OF QUALITY ASSURANCE - AW	\$4	\$0	\$0	\$0	\$37	\$41
563	TALENT RESOURCE POOL-ANL WEST	\$0	\$0	\$0	\$0	\$36	\$36
SUBTOTAL		\$94,650	\$504	\$0	\$9,656	\$24,659	\$129,469
TOTAL		\$203,187	\$40,178	\$90,339	\$42,571	\$51,316	\$427,590

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex			
(Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex			
(Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second			
(Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second			
(Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



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Argonne National Laboratory
Computing and Telecommunications Division
January 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering six classes and one demonstration. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	January 11, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	<i>Guide to Computing at ANL</i> (ANL/TM 336) <i>Recommended Documentation for Computer Users at ANL</i> (ANL/TM 379) <i>Guide to Telecommunications at ANL</i> (ANL/TM 422)
Instructor:	Fred Moszur

USING COMPUTER-BASED TRAINING

Goals:	To learn how to use computer-based training (CBT) courses in CMS.
Length of Demonstration:	One hour
Date and Time:	January 12, 1990 (Friday), 9:30 a.m. to 10:30 a.m.
Location:	Building 221, Room A-216
Instructor:	Dave Leibfritz

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

Length of Class: One 3-hour session

Date and Time: January 16, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: January 17, 1990 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-216

Instructor: Dave Lifka

USING CMS ON IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals: To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; to get printed reports; and to use CMS and Xedit computer-based training courses to further self-study.

Length of Class: One 3-hour session

Date and Time: January 17, 1990 (Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *IBM VM System Product: CMS Primer (SC24-5236)*
CMS at ANL (ANL/TM 423)

Instructor: Pete Bertoncini

INTRODUCTION TO UNICOS

Goals: To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS and VAX/VMS front-end stations.

Length of Class: Two 3-hour sessions

Dates and Time: January 18, 1990 (Thursday), 1:30 to 4:30 p.m.
January 23, 1990 (Tuesday), 1:30 to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System V* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield

PROGRAMMING IN VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic DCL command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.

Length of Class: One 3-hour class

Date and Time: January 22, 1990 (Monday), 9:00 a.m. to noon

Location: Building 221, Room A-216

Instructor: Dave Lifka

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit
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CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF
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MVS Batch Courses

JCL	Introduction to Basic JCL
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Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)
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TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting





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